

ROCKS AND MINERALS

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Gem Sillimanite, Clearwater River, Idaho
14 x 18 x 3 inches, weight 34 lbs.
J. L. Blalock collection
(See "Gem Sillimanite in Idaho" in this issue)

60c

MAY - JUNE, 1956

Whole Number 252

67th LIST OF MINERALS

METEORITE (AEROLITE), Shelburne, Ont. Fell 1904. 3x2x2 1/2. 295 grms ..	\$30.00
WILLEMITE, Moresnet, Belgium. Mass of minute xls. 2 1/2x1 1/2x1 1/2 ..	2.50
ASBOLITE, New Caledonia. Mammillary mass. 2x1 1/2x1 1/4 ..	2.00
TYROLITE, Tyrol. Foliated w. micro. xld. Azurite in matrix. 3x2 ..	7.50
ANTIMONY, Kern Co., Cal. Xline mass. 2x1 1/2 ..	2.50
FRANCKEITE, Bolivia. Xline. mass. 2 1/4x2 1/4 ..	3.50
KRAUSITE, Borate, Cal. Brilliant micro. xls. on matrix. 2x1 1/2 ..	2.50
ZIRCON, St. Peter's Dome. 3/4 inch bright xls. in rock. 2x2 ..	2.00
UVAROVITE, Orford, Que. Micro xld. on xl. of Diopside. 2x1 ..	2.00
LIVINGSTONITE, Huitzucu, Mexico. Xline. mass. 2x2x1 ..	3.50
CHRYSOBERYL, Greenfield, N. Y. 1/2 inch xl. in matrix. 2x2 ..	3.00
TUNGSTENITE, Emma Mine, Utah. Xline. masses w. some rock. 3x2x2 ..	5.00
ANTLERITE, Chile. 1/2" xline. fibrous vein coated w. BLOEDITE. 3x2 ..	3.00
PARSETTENSITE, Switzerland. With ERRITE, xline. mass. 2 1/2x2 1/2 ..	3.50
EMMONSITE, Goldfield, Nevada. Coating rock. 2 1/2x2 ..	2.50
PHOSGENITE, Sardinia. Xld. on matrix. Fl. under LW. 2 1/2x1 1/2 ..	6.00
LUDWIGITE, Hungary. Fibrous xline. mass. 3x2 ..	2.50
BORNITE, Carroll Co., Maryland. Masses in Quartz. 2 1/2x2 ..	2.50
ALASKAITE, San Juan Co., Colorado. Xline. mass. 2x1 1/2 ..	5.00
VASHEGYITE, Manhattan, Nev. Veins in bright green Opal. 2 1/2x2x1 ..	3.00
LEWISTONITE, Fairfield, Utah. Micro. xld. w. Wardite, etc. 3x2 ..	5.00
URANOPILITE, Hite, Utah. Coating on Pitchblende. 1 1/2x1 1/4 ..	4.00
PHENAKITE, Mt. Antero, Col. 1/4 inch xl. on Microcline. 1 1/4x1 1/4 ..	2.00
PHENAKITE, Ural Mts. Group of yellow xls. 1 3/4x1 ..	6.00
BRAZILIANITE, Brazil. Xls. (up to 1/2") in matrix. 1 1/2x1 1/2 ..	15.00
DAVYNE, Vesuvius. Well xld. on matrix. 3x2x1 ..	3.50
GAHNITE v. KREITTONITE, Bavaria. Xls. in mass. 3x1 1/2 ..	3.00
AXINITE, Thum, Saxony. Xld. with Calcite on rock. 2 1/2x2 ..	3.50
SPINEL, Warwick, N. Y. Sharp xls. w. Chondrodite in Calcite. 3 1/2x2 1/2x2 ..	3.50
TENNANTITE, Cornwall. Small xls. on ore. 2x2 ..	2.50
CHRYSOBERYL, Greenwood, Maine. Xls. in rock. 3x2 ..	3.50
DURDENITE (EMMONSITE), Sylvanite, New Mexico. Coating on ore. 2 1/2x1 3/4 ..	3.00
HORTONOLITE, Monroe, N. Y. Xline. mass. 3x2 ..	3.00
ORIENTITE, Oriente, Cuba. Rocky mass. 2 1/2x2x1 1/2 ..	3.00
THOMSONITE, Paterson, 1 inch xld. ball on Prehnite w. Calcite. 3x2 ..	3.00
ULLMANNITE, Müsen, Germany. Xline. mass. 3x2 ..	3.50
BERTRANDITE, Mt. Antero, Colorado. Xld. in matrix. 2x1 3/4 ..	3.00
BENITOITE, California. About 12 sharp xls. on matrix. 2 1/2x2 ..	20.00
ZEOPHYLLITE, Teplitz, Bohemia. Xld. on rock. 4x3 ..	4.00
CANCRINITE, Bancroft, Ont. Fine polished slab. 5x4x3/4" ..	10.00
BABINGTONITE, Westfield, Mass. Xld. with Prehnite. 4x2x2 ..	3.50
BISMUTH, Schneeberg, Saxony. Xline. mass. w. some ore. 1 1/2x1 1/2x1 1/4 ..	3.00
TOPAZ var. PYCNITE, Saxony. Columnar mass. 3x2 ..	2.50
BERYL, Madagascar. Deep sea-green translucent xl. 2 3/4x2x2. 14 oz.	20.00
SPODUMENE v. KUNZITE, Pala. Complete xl. 3 1/2x1 3/4x1 1/4. 2 oz. Not cutting.	20.00
SCHEELITE, Atolia, Cal. Pure xline. mass. 4x3x1 1/2. 28 oz. Fl.	6.50
DATOLITE, Westfield, Mass. Well xld. mass, no rock. 4x3x1 1/4 ..	5.00
CHALCOPYRITE, French Creek, Pa. In skeletal xls. 2 3/4x1 3/4x1 1/4 ..	3.50
ALURGITE, San Marcel, Piedmont. Red xline. mass. 3x2 ..	2.00
EMBOLITE, New South Wales. Coralloidal mass, no gangue. 2 1/2x2x1 1/2 ..	12.50

HUGH A. FORD

Office and Showroom: 110 Wall Street New York 5, N. Y.

Telephone: BOwling Green 9-7191

No list furnished, but inquiries for specific minerals welcomed.

ROCKS and MINERALS

PETER ZODAC, Editor and Publisher

America's Oldest and Most Versatile
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Whole No. 252

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CHIPS FROM THE QUARRY

R & M IS SOMETIMES LATE

During the past few years we have received quite a number of complaints from subscribers over the lateness of the arrival of their copies of R & M. Some have accused us of deliberately holding back copies from their section of the country in order that some other section may get copies first (a few disgruntled subscribers actually dropped their subscriptions on account of this belief).

R & M enjoys a 2nd class mailing privilege which permits the mailing of the magazine in an efficient and far less costly way than by ordinary mail—and it also eliminates the nuisance of attaching stamps to the envelopes. But all copies—for all subscribers—have to be mailed together (all at the same time). If we were to hold back just one copy—mailing it an hour or so later—that copy would have to have 6c in stamps attached to it (when mailed 2nd class a copy costs about 1c and no stamp is attached).

Strange as it may seem, subscribers residing hundreds of miles away often get their copies days ahead of nearby subscribers. Our postmaster tells us why. When a subscriber resides on the main line of a big railroad he will often get his copy quicker, even if he is 2,000 miles away, than that subscriber who may be only 50 miles away but who is off the main line.

R & M is printed in New Jersey, and is delivered to us by truck. After arrival of the magazine it may take 3 or 4 days to get it ready for mailing.

R & M is scheduled to be mailed on the 20th of the even months. Sometimes it comes out earlier, sometimes later. When it comes out later, almost always it is because something went wrong at the printers. A machine may break down, they may have a rush order for the government which has to be handled first. The key man who handles R & M may get sick, weather may play havoc with deliveries, etc., etc.

Taking them as a whole, subscribers for R & M are a mighty patient group, loyal and most friendly, and it is a real pleasure and a privilege issuing R & M for them.

The March-April, 1956, issue of R & M was 10 days late in making its appearance. The binder broke down at the printers and it took 10 days to get new parts—from Cleveland, Ohio. We are very sorry for the delay.

Please note—The July-August issue will be out about Aug. 20th.

Attention Subscribers!

The July-August R & M will be out around August 20th—then allow a few days for the magazine to reach you.

Please—please—please do not start bombarding us with letters around Aug. 10 that your July-August issue failed to arrive. Please be patient. Give R & M a chance to get off the press

Pegmatite Minerals of the United States

David M. Seaman

American Museum of Natural History, New York City

Article 6—Silica and Silicates (part one)

Silica and Silicates (107)

QUARTZ, silica, SiO_2 , is an essential mineral in the granite pegmatites. Massive, white, or smoky colored crystalline quartz often makes up the greater bulk of the mass of pegmatite material. Many masses are found in the cores in the center of pegmatites. Not infrequently some of these cores are of pink or the rose quartz variety. Rock crystals, or the colorless quartz crystals, are often found as well as are smoky quartz crystals in the cavities of druses which occur in many pegmatites. Amethyst, the purple colored variety of crystalline quartz, usually is found in crystals in cavities or pockets but are much rarer than the rock crystal or smoky quartz variety. Rose quartz crystals are very rare and have been found at only a few localities. The massive quartz is sometimes found as pseudomorphs after the various colored minerals which often occur in pegmatites.

Rock crystals occur at many localities. Some over three feet in length have been found at the Palermo Quarry, North Groton, New Hampshire. Crystals to 150 pounds in weight have been found at Pala, California. A forty-four pound crystal nineteen inches in length was taken from the Devil's Head area southwest of Denver, Colorado, a few years ago. A large milky quartz crystal 26x19x13 inches and weighing 257 pounds was found about 1925 at the Bennett quarry, Buckfield, Maine, together with others over three feet in length.

Large smoky quartz crystals of excellent quality have been obtained from Mount Apatite, Auburn, Maine, up to 11½x21½ feet in size. Smoky quartz crystals have been found at the Fisher quarry, Topsham, Maine, to sixteen inches in length and a foot in thickness. A ninety-one pound crystal was found at Long Mountain, Stark, New Hampshire. Crystals to a foot in length have been taken

from the pegmatites at Haddam Neck, Connecticut, and from the Mt. Antero region of Colorado. A very large smoky quartz crystal was recovered about 1905 from the Barringer Hill, Texas locality, which measured 43x28x15 inches and which weighed some six hundred pounds.

Massive rose quartz of a good color has been found at a number of places: Paris and Rumford, Maine; Alstead, Gilsum, and Springfield, New Hampshire; Bedford, New York; the Scott and other quarries near Custer, South Dakota; near the Royal Gorge in Colorado, and elsewhere. Small crystals of rose quartz have been found in small cavities or vugs in cleavelandite at Newry, Maine. Rose quartz crystals have also been found at Red Hill, Maine; North Groton, New Hampshire, and from Pala, Rincon, and Mesa Grande, California.

Amethyst quartz crystals have been found occasionally at Haddam Neck, Connecticut, to three inches in length. Other amethyst crystal localities are near Milan and Berlin, New Hampshire; Deer Hill, Maine; near Statesville, North Carolina; at Amelia, Virginia, near Clayton, Rabun county, Georgia; etc. The old localities near West Chester, Upper Providence, and other places in Delaware and Chester counties, Pennsylvania, were also probably for the most part in pegmatites. A crystal of amethyst 11½x11½ feet was found at Shaw and Esray's quarry near Chester, Chester County, Pennsylvania, and is now in the collection of the Philadelphia Academy of Sciences in Philadelphia, Pennsylvania.

Massive quartz pseudomorphs after pollucite crystals have been found at Greenwood, Maine, to a foot in diameter and weighing twenty-eight pounds. Quartz pseudomorphs after topaz crystals occurred at the Little Three mine, Ramona, California. Recently quartz pseudomorphs after beryl have been found at Beryl Mt. near South Acworth and from the McGinnis mine near Rumney in New Hampshire. Other quartz pseudomorphs

have been noted but it has often been difficult to determine the original mineral.

The cryptocrystalline varieties of quartz are very rare in pegmatite but chalcedony occurs in veinlets in the Colfeco no. 12 pegmatite of the Eight Mile Park area of Fremont county, Colorado; while pink chalcedony has been found with some of the rose quartz crystals at Newry, Maine.

OPAL, silica, with a varying amount of water, is deposited at low temperatures from silica-bearing waters often during the last stages of mineral deposition. The variety hyalite which is often as clear as glass and colorless, usually takes the form of crusts with globular and botryoidal surfaces and coats cracks or fills seams in the pegmatite. It is often fluorescent, in a light green color, by contamination with some uranium minerals found in the pegmatites.

Hyalite opal occurs at Stone Mountain, Georgia; quite commonly at many localities in the Spruce Pine district of North Carolina; from numerous places in New Hampshire, at Bedford, New York; some Connecticut localities; at Pala and Rincon, California. Yellow crusts of hyalite have been found near Bakersville, North Carolina; and fine, light blue crusts at the McKinney and Putnam mines near Little Switzerland, North Carolina.

PETALITE a lithium and aluminum silicate, occurs most commonly as a rare mineral in lithium pegmatites. It has been noted at Paris, Peru, Greenwood, and Newry, Maine. About 1934 or 1935 about eight tons was found at Noyes Mountain in Greenwood, Maine. Found also in some of the lithium pegmatites of the Black Hills of South Dakota and of the Bridger Mountains in Fremont county, Wyoming.

Feldspar Group

The feldspars form a group of silicates of aluminum, and of sodium, calcium, potassium, or barium similar in hardness, cleavage, specific gravity and twinning. They are important rock-forming minerals. Those found commonly in the granite pegmatites are the potash feldspars orthoclase and microcline; the soda feld-

spar, albite; and the intermediate feldspar, oligoclase, of the plagioclase group of feldspars.

ORTHOCLASE monoclinic, potassium and aluminum silicate, occurs commonly in pegmatites with microcline and in minor amount to it though other feldspars may also be present. Much of the material formerly identified as orthoclase is really the triclinic, potassium and aluminum silicate, microcline.

Orthoclase sometimes occurs in very large crystals in the pegmatites. A few years ago crystals to eighty pounds in weight were found at a quarry near Overlook, New York. Noted at the old Buerlinger Hill, Texas, locality in crystals to five feet in diameter. At Moneta, Nelson County, Virginia, in crystals to 3x6 feet and weighing eight hundred pounds. The rarer sanidine variety of moonstone occurs in crystals one to two feet on a side in pegmatite within a rhyolite porphyry plug in the Black Range, Grant County, New Mexico.

MICROCLINE, triclinic, potassium and aluminum silicate is the most common feldspar present in the majority of pegmatites or in perthite, the commonly twinned potassium and sodium feldspar intergrowth present in many pegmatites. Together with quartz and mica it often constitutes 95% or more of the material of the common type of pegmatite. Microcline is often found near the quartz cores in many zoned pegmatites and is usually present even in the most complex lithium pegmatites.

Microcline has been found in large crystals and cleavages at many localities measuring three or more feet across the faces. Crystals to eight feet in length have been observed at Black Mountain, Rumford, Maine; to three feet near Davis, Maryland; 3x4x5 feet in the Gilesum area, New Hampshire; three feet in the Petaca district New Mexico; to two feet at Royalston, Massachusetts; six feet at French Mountain, Albany, Maine; a foot at Leiperville Pennsylvania; six inches at Bedford, New York; etc.

The amazonite variety with a green color has been found in large crystals

eight inches in diameter at Valhalla, Westchester Co., New York. The best localities however are in Colorado at Crystal Peak near Florissant (crystals to a foot and a half in length); Crystal Park near Manitou; the Devil's Head region; a few on Pike's Peak itself. Good crystals to four inches in length have been found at Mineral Hill, Delaware county, Pennsylvania. Noted at Rockport, Massachusetts; Mount Desert Island, Maine; large cleavages at the Rutherford Mine near Amelia Courthouse, Virginia; at the Ray Mine near Burnsville, North Carolina; at North Conway, New Hampshire; several localities in the Black Hills of South Dakota.

ALBITE, sodium and aluminum silicate, occurs chiefly in sodium and lithium pegmatites in the bladed variety, cleavelandite, where it is the chief feldspar present. Cleavelandite is also found lining most of the pockets or cavities which are found in these pegmatites. It is present in smaller amounts in other pegmatites. It is the chief feldspar which often occurs together with lepidolite, the lithium, tourmalines, and other lithium minerals in replacement zones near the centers of the pegmatites. At many of the gem localities especially near or in the gem tourmaline pockets the cleavelandite occurs in a beautiful light blue color which seems to be characteristic when associated with lithium-bearing gem minerals.

Localities for fine specimens of cleavelandite are the many occurrences of lithium pegmatites of New England, South Dakota, Colorado, Wyoming, New Mexico, Arizona and California. Light blue cleavelandite occurs at Auburn and Paris, Maine; Portland and Haddam Neck, Connecticut; Grafton, New Hampshire and elsewhere. The old mines near Amelia and Winterham, Virginia, have produced excellent specimens of cleavelandite while Maine has many localities as at Auburn, Paris, Greenwood, Peru, Norway, Newry, Rumford, Topsham, etc. In New Hampshire at Alstead, Gilsum, North Groton, Grafton, Alexandria, etc. In Colorado near the Royal Gorge near Canyon City and near Ohio City in Gunnison county. There are a number of local-

ities in the Keystone district and Custer area of the Black Hills of South Dakota where cleavelandite is common.

The variety moonstone, showing a bluish opalescence, has been noted at Mineral Hill, Delaware county, Pennsylvania, and a number of other places in Chester and Delaware counties in this state. Moonstone has also been found at Bartlett, New Hampshire; at Diana, and Russell, New York; and elsewhere.

OLIGOCLASE, is a sodium, calcium, and aluminum silicate near the albite end of the plagioclase group of feldspars. It occurs in many pegmatites, sometimes being the chief feldspar present as in many of the pegmatites of the Spruce Pine district of North Carolina.

A moonstone variety occurs at Hart Grant near Bartlett, New Hampshire; at Mineral Hill, Delaware county, Pennsylvania, and a number of other places in southeastern Pennsylvania.

The sunstone variety with aventurine reflections has been found at Mineral Hill, Delaware county and at Kennett and Pennsbury, Chester county, Pennsylvania; near Statesville, North Carolina and etc.

Excellent crystals of oligoclase have been obtained at Fine, New York; Springfield, New Hampshire, etc. Clear gem oligoclase showing cleavage but no twinning occurs in some quantity at the Hawk Mine near Bakersville, North Carolina.

POLLUCITE is a hydrous, caesium and aluminum silicate. It has been noted as one of the rare minerals in lithium pegmatites at a number of localities in Maine: Hebron, Newry, Buckfield, Greenwood, Paris, Rumford, and recently at the B. B. no. 7 near Norway. A mass weighing 950 pounds was found in 1927 at Hodgson Hill, Buckfield, Maine. Another mass of 4638 pounds was found in 1931 at Uncle Toms Mountain in Greenwood, Maine. Noted in tiny crystals in vugs in massive material at Noyes Mountain, Greenwood, Maine about 1935, the first American occurrence in crystals.

Found elsewhere at Leominster and Lithia, Massachusetts; Tin Mountain near Custer, South Dakota; at Pala and Mesa Grande, California. A mass six feet across was found at Tin Mountain, South Da-

kota. A number of attempts to mine polucite for its caesium content have been made but have met with only limited success in Maine and South Dakota.

Pyroxene Group

The pyroxene group is a common name for a group of closely related mineral species which are metasilicates of calcium, magnesium, and iron together with several other elements. They may be distinguished from amphiboles chiefly by the difference in cleavage angle and crystal form. The cleavage angles of pyroxenes is nearly 90° ; that of amphiboles is nearly 55° and 125° . Pyroxenes often occur in short, stout prismatic crystals; amphiboles in long, slender, bladed crystals.

ENSTATITE is a species of pyroxene and when pure is a magnesium silicate but some iron is also usually present. It is very rare in pegmatite and the iron bearing variety bronzite was found at Hiddenite, Alexander county, North Carolina.

DIOPSIDE is a calcium and magnesium silicate in which iron may be present thus grading into hedenbergite. It commonly occurs in crystalline limestone or dolomite. It is rare in pegmatite which cuts either of these rocks but there are a number of interesting localities in pegmatite. Crystals to 6x18 inches have been obtained at the Frost quarry, near Davis, Howard county, Maryland. Also crystals, some of gem quality, have been found near DeKalb Junction and Russell, New York. Also noted at Richville Station, New York.

AUGITE, aluminous pyroxene, a calcium, magnesium, iron, and aluminum silicate has rarely been observed in pegmatite as at Silver Hill, Washington and at Shaft 7 near Fishkill, New York.

HEDENBERGITE, a calcium iron silicate forms one end of the diopside series. It has been found in crystals more than six inches in length in pegmatite at the Quickstrike and Ben Nevis mines on San Augustin Peak, Organ Mountains, New Mexico.

AEGERITE essentially a sodium and iron silicate occurs very rarely in pegmatites. Aegerite has been found as a rare mineral in the pegmatites of the Fallon and Ballou quarries at Quincy, Massachusetts. A vanadiniferous aegerite has been found in veins which resemble pegmatites in the Rainy Creek Mining district seven miles northeast of Libby, Montana.

SPODUMENE, a lithium and aluminum silicate, is the most abundant source of lithium metal and of lithium salts. It occurs commonly in lithium pegmatites associated with lepidolite, lithium tourmalines, amblygonite; often with triphylite, lithiophilite, and other lithium minerals. It is also common in soda pegmatites without lepidolite or colored lithium tourmalines. The chief associated feldspar is albite of the variety of cleavelandite. Most spodumene is economically recovered from the inner zones of zoned pegmatites where it is closely associated with cleavelandite in pod like concentration or from replacement lithium pegmatite zones near or in the cores of complex pegmatites.

Extremely large crystals have been noted at the Etta mine near Keystone, South Dakota, where crystals from three to six feet in diameter and forty-six feet in length have been mined. One crystal forty feet in length weighed sixty-five tons. Other large crystals occur at the Tin Mountain Spodumene mine near Custer, South Dakota, to thirty feet in length. Crystals of two to eight feet in length occur at Newry, Maine; and to ten feet in length at the Harding Mine of Taos county, New Mexico.

Many spodumene localities are known in the New England States: Leominster, Goshen, Sterling and Huntington, Massachusetts; Marlow, Raymond, Manchester, Alstead, and Gilsum, New Hampshire; Branchville and Portland, Connecticut; Paris, Buckfield, Greenwood, Rumford, Newry, and Auburn in Maine.

Crystals to two and a half feet in length occur in the vicinity of Kings Mountain, North Carolina. Also at many San Diego and Riverside county localities in California.

Kunzite the beautiful gem variety of spodumene with an amethystine or purple color has been found in excellent gem crystals from a number of places in southern California: Pala (crystals to 8x3x10 inches), Rincon, Coahuila, Mesa Grande, Bautista Creek, etc. Kunzite has also been noted at Branchville and Portland, Connecticut, as well as Haddam Neck, Connecticut, in smaller amounts. A few gem crystals to 1x3 inches have been found near Spruce Pine, North Carolina. Kunzite has also been noted at Black Mountain, Rumford, Maine, and from the Chandler mine at Raymond, New Hampshire.

The emerald-green variety of spodumene known as hiddenite has been found at only two localities near Hiddenite, Alexander county, North Carolina. A few green spodumene crystals have also been noted at Pala, California, and recently green internal portions of some whitish crystals were found near Custer, South Dakota. However these do not contain chromium as the coloring matter as do the true North Carolina hiddenites.

Spodumene has been mined extensively in the Black Hills of South Dakota for its lithium content and is also being mined today in the Kings Mountain area of North Carolina which contains the greatest spodumene reserves in the United States.

Cymatolite, an alteration of spodumene, composed of albite and muscovite with a wavy fibrous structure has been noted at many of the spodumene occurrences as at Newry, Maine; Branchville, Connecticut; and elsewhere.

RHODONITE, manganese metasilicate with some calcium always present, occurs very rarely in pegmatite but has been noted at Rumford, Maine, and Branchville, Connecticut.

BABINGTONITE, a calcium, iron and magnesium silicate has been found at Blueberry Mountain, Woburn, Massachusetts, in pegmatite veins cutting granodiorite rocks.

WOLLASTONITE, calcium metasilicate, occurs commonly as a metamorphic

mineral in limestone near its contacts with intrusive rocks. At Crestmore, Riverside county, California, it occurs both in the pegmatite and in the limestone which the pegmatite intruded.

Amphibole Group

The amphibole group consists of a series of closely related mineral species. Chemically the amphiboles are metasilicates of calcium, magnesium, and ferrous iron, together with several other elements. The cleavage angles for the group is about 55° and 125°.

HORNBLLENDE, approximately a hydrous, sodium, calcium, magnesium, and iron silicate; has been noted as a rare accessory mineral in pegmatite at Davis, Maryland; Bedford, New York; Pala, Riverside, and Fairplay, California.

TREMOLITE, a hydrous, calcium and magnesium silicate, another species of amphibole, is sometimes found in pegmatite which cuts through limestone or dolomite as at DeKalb Junction and Richville Station, New York.

GRUNERITE, an iron and magnesium silicate, has been noted in pegmatite at Rockport, Essex County, Massachusetts.

ACTINOLITE, a species of amphibole is another hydrous, calcium, magnesium and iron silicate which commonly occurs in talc and other schists. It has been reported from pegmatite at Cape Ann, Massachusetts.

HOLMQUISTITE, a lithium bearing variety of glaucophane is essentially a sodium, aluminum, iron silicate with some magnesium and some lithium also present. It is very rare in pegmatite being noted only at Hiddenite, Alexander County, North Carolina.

RIEBECKITE is essentially a sodium and iron silicate. It occurs in pegmatite at Quincy, Massachusetts; and at St. Peter's Dome in the Pike's Peak region of Colorado. The fibrous variety, crocidolite, occurs at West Quincy, Massachusetts.

ARFVEDSONITE, a hydrous, sodium, iron, and aluminum silicate occurs in pegmatite at St. Peter's Dome in the Pike's Peak region of El Paso county, Colorado.

BERYL, beryllium and aluminum silicate, occurs commonly as an accessory mineral in many pegmatites ranging from common pegmatite to the complex pegmatites. It is the only economic source of beryllium metal and beryllium salts used extensively in beryllium-copper and other alloys, and for science and industry. Most commercial deposits of beryl occur in zoned pegmatites where it is often possible to mine these richer beryl zones exclusively for beryl, though beryl is often saved as a byproduct of feldspar and mica mining, thereby increasing the profits of these mines.

Gem beryl usually is found in the pockets or cavities often or occasionally found in many pegmatites. The gem pockets may occur in definite zones within the pegmatites usually near the cores in zoned pegmatites, or in isolated pockets in any position in the pegmatite. The aquamarine beryl gem zone at Mt. Antero, Colorado, is near the center zone in narrow pegmatites not over four feet in width. The pink or morganite beryl rich in sodium, lithium and caesium is confined to those pockets found in the complex type of lithium pegmatite together with cleavelandite, lepidolite, lithium tourmalines, spodumene, and other lithium minerals as in the lithium pegmatites of Maine, Connecticut, California, Colorado and other states. Some gem beryls may be found frozen into solid pegmatite but of course are much harder to remove from their stony matrix without shattering. Some aquamarine or blue gem beryl and golden beryl has been found at numerous localities in Maine, New Hampshire, Connecticut, etc. in this manner. Gem golden beryls have been found at the Slocum Quarry at East Hampton, Connecticut, for the most part frozen tightly in solid pegmatite. The green or emerald gem beryl crystals are quite rare in pegmatite but some emeralds to nine inches in length were found many years ago at the Hiddenite locality of Alexander county, North Carolina; some from near Shelby in Cleveland county and also some small emerald crystals in pegmatite on Crabtree Mountain near Spruce Pine also in

North Carolina. A few pale emeralds have been found at Ramona, California, and at Topsham, and Newry, Maine; also in pegmatite cutting limestone at Rye Patch, Nevada.

Common beryl is a widely distributed pegmatite mineral and only a few localities may be mentioned where unusually large crystals have been found. The most noted locality was perhaps the Bumpus quarry at Albany, Maine, where enormous crystals were found during the operations, measuring as much as four feet in diameter and eighteen feet in length and weighing as much as eighteen tons each, in several groups radiating out from the centers like gigantic sunbursts. A single large crystal of about the same size was found long ago at Mt. Apatite, Auburn, Maine; and a crystal 3x3x20 feet was found in 1912 at the Scott Rose Quartz quarry crystals to six feet in length have been near Custer, South Dakota. Many large noted at South Acworth, New Hampshire, and to four feet in length at Amelia, Virginia.

Other localities where good aquamarine beryl has been found are Stoneham, Topsham, and other places in Maine; at Royston, Massachusetts; from Grafton, and North Groton, New Hampshire; Middletown, Portland, and East Hampton, Connecticut; near Burnsville, North Carolina; near Avon, Latah county, Idaho; Newlin and Leiperville, Pennsylvania; Paia, Mesa Grande, Coahuila, Rincon etc. in San Diego and Riverside counties in California.

Golden beryl occurs in many pegmatites of the New England States some of which is in gem quality: Buckfield, and Phippsburg, and elsewhere in Maine; North Groton, and Grafton, New Hampshire; several places in Connecticut, etc. Also from Mitchell and Yancey counties, North Carolina, and at many of the tourmaline localities of Riverside and San Diego counties, California.

Morganite or the pink beryl is the most rare of the beryl varieties. A number of quarries in Maine have produced crystals some of gem quality as the Berry quarry at Poland (crystals to four inches

in length); Mt. Apatite at Auburn (crystals to 6x8x3 inches); Greenwood, Hebron, Buckfield, Paris and the Fisher quarry at Topsham. Morganite beryls have been noted in Connecticut to 1x1½ feet at Haddam Neck, to 8x10x3 inches at Portland, and to 1x1½ feet at Branchville. Some gem morganite has been found at Goshen, Massachusetts, and from a number of localities in California as at Pala (zoned crystals with aquamarine centers to 5x5x3 inches), Coahuila, Hemet, Oak Grove, Jacumba, Ramona, and Mesa Grande (crystals to 8x8x3 inches). Beryl with a deep red core and an outer white shell has been found at the Border no. 2 pegmatite near Canyon City, Colorado.

CORDERITE or **Iolite**, is a magnesium, iron, and aluminum silicate, and is usually found in gneisses and crystalline schists. It has been found in altered crystals to a foot in length in the Climax pegmatite near Micanite north of Canon City, Colorado. It has also been found in pegmatite at Haddam, Connecticut; and in the Neal pegmatite near Unity, New Hampshire. Chlorophyllite a common alteration product occurs at most of the cordierite localities.

EUCRYPTITE is lithium and aluminum silicate which occurs as an alteration of spodumene at several pegmatite localities: Branchville, Connecticut; the Harding Mine near Embudo, New Mexico; and the Buzzo quarry at Center Strafford, New Hampshire. At all of these places it fluoresces a deep pink or red under short wave ultra violet light.

HELVITE a complex beryllium, iron manganese and zinc silicate together with manganese, iron, and zinc sulfide; is a quite rare mineral. It has been found at the Rutherford mine near Amelia Courthouse, Virginia; and in small pink tetrahedral crystals deposited on microcline crystals at Cookstove Mountain near St. Peter's Dome, Colorado.

DANALITE is another complex beryllium, iron, manganese, and zinc silicate

and zinc sulfide. It occurs as rare octahedral crystals in pegmatite at Cape Ann, Essex County, Massachusetts; and at St. Peter's Dome near Colorado Springs, Colorado.

Information Wanted by Readers

I have found, at different times here in West Chesterfield, Mass. (Hampshire Co., quite a lot of staurolite crystals in schist. Although a great many of them are rough and poorly formed, yet I do find some quite nice crystals once in a while. These crystals are nearly all twinned in different shapes and they are quite interesting. Now these crystals are usually embedded in the schist in such a way that only the top part of the crystals can be seen and I know they would be much better if they could be freed from the schist matrix. Can any reader tell me how these crystals may be freed from the matrix? I have tried using hydrochloric acid, also using hammer to free them but the acid will not touch the crystals, and the use of a hammer and chisel tends to break them all. I have tried also, dentist's picks, but the rock was too hard to wear away. If some reader could give me a little help on how to free the crystals, I would deeply appreciate it.

Ernest H. Fisk

West Chesterfield, Mass.

April 10, 1956

Will some reader of R & M give me the names and addresses of 3 or 4 firms who manufacture dop sticks? I don't want names of firms who just sell them but the ones who make them.

Also what rock tumbler is considered the best one?

Mrs. Crystal Doggett

Box 177

Nipomo, Calif.

March 7, 1956

Where can we obtain information on mineral hunting under water? We have the self contained diving equipment and an Ingersoll-Rand compressor.

Maurice Schell

P.O. Box 401

Owosso, Mich

April 9, 1956

Lately have been scanning R&M advertisements for offerings of good quality hematite suitable for extra fine cabochons. No catch 'em so far. Perhaps you can publish a note about this in R&M.

Frank H. Waskey

Oakville, Wash.

THE GREENFIELD, NEW YORK CHRYSOBERYL LOCALITY

Ralph C. Gosse
P.O. Box # 8072 Albany, New York

CHRYSOBERYL was discovered in Greenfield, Saratoga County, New York in the year of 1821 and was first noted by John H. Steel in a letter he wrote to Benjamin Silliman. This letter was printed in THE AMERICAN JOURNAL of SCIENCE and ARTS (1822, pages 37-38). Steel wrote, in part, "I hasten to inform you of the discovery of a new locality of chrysoberyl and prismatic mica, presuming that, as these minerals have not occurred very frequently in the United States, it may afford you some gratification. They are found in a vein of granite which passes through gneiss; the vein was discovered some years ago. The rock in which this vein is situated is about one mile north of the high rock springs at Saratoga."

Lewis Beck, M.D. who was Professor of Chemistry and Natural History in Rutgers College, New Jersey wrote in his Mineralogy of New York (1842, pages 375 - 377): "The only locality of chrysoberyl at present known in this state, is in the town of Greenfield, about a mile north of the village of Saratoga Springs. It occurs in a vein of granite transversing gneiss, and is associated with Tourmaline, garnet, apatite, feldspar, and mica. Its colour is usually a yellowish green."

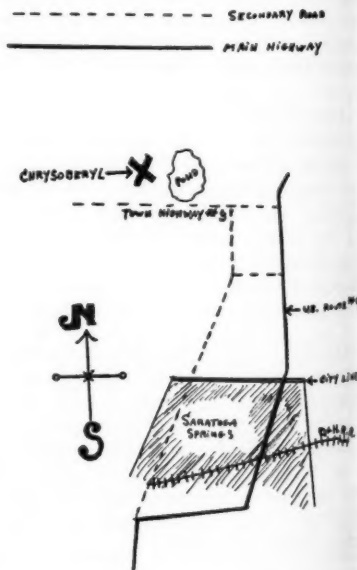
Beck also mentions in his mineralogical notes, which were unpublished, that "large fine specimens have been obtained at the Greenfield locality in 1845 by Dr. Leonard of Lansingburgh." As far as can be determined, the exact location has been lost for well over 100 years.

This locality may have been still lost if not for two sharp-eyed Union College students, Robert Navias and John Ostrom. A few years ago they rediscovered the locality while making a field study of the crystalline rocks of this area. It is through the work of Robert Navias and John Ostrom who wrote a report on the Green-

field chrysoberyl location for Union College that makes this article possible.

The Greenfield locality is slightly less than a mile north of the Saratoga Springs city line, and can be reached by going north from Saratoga Springs on U.S. Route 9 for a mile and a half beyond the Delaware and Hudson Railroad crossing, turning west on town highway 3 (St. Clements Road) and proceeding for half a mile. The dike is about 40 yards north of the road and west of a small pond.

The local bedrock is part of the pre-Cambrian crystalline complex which makes up the Adirondack area, and consists of gneisses which crop out in a series of ridges whose east-west trend is probably due to the direction of the lineation, rather than to any other cause. The general area shows signs of glaciation which



Location of chrysoberyl locality at Greenfield, N. Y.

have caused rounding of the ridges, depressions, and is covered by glacial debris.

The pegmatite dike is exposed for a distance of about 75 feet whose general trend is a north to north-east direction. The widest point of the pegmatite is about 2 feet narrowing down to only a few inches. The chrysoberyl seems to occur only at the widest section of the dike.

An excavation pit has been dug following the direction of the dike to a length of about 45 feet which depth is 8 feet. The chrysoberyl can be found by digging into the pit which is now partly filled with debris.

The crystals of chrysoberyl are of a greenish-yellow color, and commonly show the twinned form of this mineral. Sometimes the crystals are almost transparent but, it is doubtful that crystals of gem quality occur here. The crystals are tabular shaped.

Union College in Schenectady, New York, reports that crystals range up to 1.2 cm. long, 0.5 cm. wide, and 0.5 cm. thick. The writer has collected some which exceed all sizes collected by the college. One crystal collected measured 2.4 cm. long, and 1 cm. wide. The largest one found measured 4 cm. long 2.2 cm. wide.

Spectrographic analysis shows the presence of beryllium, aluminum, and silicon.

Also to be collected in the same pegmatite are beautiful terminated black tourmalines, which show polished faces and sides. Some of the tourmaline remaining on matrix displays the beautiful sunburst patterns.

It is interesting to note that the name chrysoberyl was derived from the Greeks and means gold-beryl because it is a superior kind of beryl.

REFERENCES

The Occurrence of Chrysoberyl at Greenfield, New York, Robert A. Navias and John H. Ostrom.

Department of Geology, Union College, Schenectady, New York

*Indirect Reference

American Journal of Science, Vol. 249 April, 1951 PP. 308 - 311

ATTENTION SUBSCRIBERS!

ROCKS and MINERALS comes out once every two months as follows:

Jan. - Feb., out about.....Feb. 20
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May - June, out about.....June 20
July - August, out about.....Aug. 20
Sept. - Oct., out about.....Oct. 20
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REPRINTS AVAILABLE

There have been so many requests for reprints lately that the following bit of information may be of value. Reprints can be supplied and at the following rates, approximately:

100 copies	2 pages	\$3.75
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All reprints must be ordered in advance, before the articles make their appearance in print.

An invitation from a museum curator!

Editor R & M:

I know that you must be one of the busiest men in the country but if you are ever up in the Greene County, N. Y. area, I would deem it a pleasure and a privilege to have you look me up. You see a number of years ago I purchased the little red schoolhouse in our district (after centralization) for a place to store my ever increasing collection of Americana and natural history objects.

But so many folks wanted a "look-see" that I now open it to the public (FREE) Sundays only, during the summer months. Of course folks are welcome anytime that they can locate me. Each year I have in excess of eight hundred visitors and the State Dept. of Commerce advertises my little museum in the booklet N.Y.S. VACATIONLAND.

Perhaps my greater claim to notoriety is in the discovering of considerable fossil tree localities. These trees, of at least three different species, have attracted much interest from some of our leading paleo-botanists. These deposits are not spectacular, yet are new and interesting.

Vernon Haskins, Curator
DURHAM CENTER MUSEUM
East Durham, New York

Dec. 21, 1955

JADE MOUNTAINS

By Carroll Kelley

7720 No. Mississippi Lane, Minneapolis 12, Minn.

For sheer size and weight jade carving reached an apex of impressiveness in the eighteenth century when Chinese lapidaries carved four enormous blocks of nephrite into mountain scenes.

Carved during the reign of Emperor Ch'ing Lung, 1736-1796, they reposed for many years in the Forbidden City, that portion of the capital city of Peking (now Peiping) which was reserved for the exclusive use of the Imperial household. It was not until after 1928, when China became a republic, that anyone from the outside world was permitted to see or photograph the three jade mountains remaining in the former palace grounds.

The largest piece is the "Jade Mountain Pagoda of the Mysterious and Diligent Yu the Great Governing the Waters." The original boulder of nephrite was sent as a tribute to Emperor Ch'ing Lung in 1778 by the governor of Chinese Turkestan. After ten years of labor the lapidaries of the Imperial Factory had worked the massive jade into an exquisitely carved shaft seven feet high and three feet square. Its weight is estimated to be seven tons. A carved base of black rock adds another three feet to this monumental piece of lapidary work. The jade is of varying shades of white streaked with green as are the other three mountains. The scenes commemorate the deeds of Yu the Great, a national hero who lived in the 22nd century, B. C. He saved China from the ravages of a thirteen year flood. In the carvings we see workmen stemming the waters which gush forth from many places. Herds of deer are seen among the trees, and near the top, Yu the Great, depicted as a demon, is directing the work of five assistants. Emperor Ch'ing Lung composed verses which he had incised on the jade together with his seal.

Next in size is the "Mountain of

Longevity." This piece is 57½" high and 41"x30" at the base. Its weight is estimated at three tons. The scene is a hillside dotted with cypress trees, a pavilion below, and a palace and pagoda above. Herds of deer appear here and there and two figures are seen crossing a wooden bridge over a spring. Again space was reserved for Ch'ing Lung's verses which are incised in gold filled characters and attested by his seal.

Third in size is a mountain four feet high and roughly three feet round at the base. Its weight is estimated to be about 1½ tons. The steeply sloping hillside is carved with trees, flowers, rocks and streams. Four old men sit in a pavilion while others are seen talking together on a bridge. This mountain has two titles which are given in two sets of Ch'ing Lung's gold incised characters and seals: "Picture of the Meeting of the Glorious Nine Old Men," and "The Pure Jade Mountain, Headquarters of the Meeting of the Glorious Nine Old Men."

And now we come to the last of the four jade mountains, the one whose removal from the Summer Palace at Peking after the looting by Franco-British troops in 1860 caused the Chinese to hide the very existence of the other three jade mountains from the outside world.

This mountain stands 22½" high and is 38⅜"x18" at the base. It weighs 640 pounds. For many years it was thought to be the largest jade carving in existence. Beyond question, it has no peers for size in the western hemisphere. The illustration shows the details of this beautiful piece so clearly I feel no written description is necessary. This jade mountain is now in the collection of the Walker Art Center in Minneapolis, Minnesota. For that reason it should be of special interest to those of you who plan to attend the 9th Annual National Convention of the American and the Midwest Federations of Mineralogical So-



Jade Mountain, Chinese, Ch'ien Lung Dynasty, Length 38- $\frac{3}{8}$ ", Height 22 $\frac{1}{2}$ ", Dated 1784.
Collection of the Walker Art Center

cieties to be held in St. Paul, Minnesota, July 12th, 13th, 14th and 15th, 1956. If you like jade, if you derive pleasure from beautiful things, make a note now to see the outstanding exhibits at the Walker Art Center and the Minneapolis Institute of Arts when you are in the

Twin Cities. The Walker Art Center has one of the finest and most complete collections of 17th, 18th and 19th century jades in America. The Minneapolis Institute of Arts' extensive jade collection is considered one of the best in the western world.

Can't answer anymore letters!

Editor R & M:

Please put this in your next issue. I just cannot answer anymore letters from people from the States requesting mineral specimens from here. I'm not an old crab and I thoroughly enjoy swapping with collectors but its getting out of hand and I can't keep up with it. For another thing, I can't send specimens through the mail. They'd never reach the States. I refer to A. Allen Graffham's letter concerning the pyrite pseudomorphs. (See R & M—Jan.-Feb. 1956, p. 24).

John R. Adams
Barcelona
Venezuela

April 24, 1956

Regrets he didn't know of R & M Earlier!

Editor R & M:

I enjoy practically every number of R & M. My one regret is that I didn't learn about R & M 20 years earlier.

O. Gregersen, M.D.
89-06 190th St.
Hollis 23, N. Y.

Jan. 26, 1956

R & M superior to any Mineral Publication!

Editor R & M:

Still convinced the R & M magazine is superior to any mineral publication.

Mrs. Jeannette Stanek
R 1, Box 389
Forest Lake, Minn.

Dec. 19, 1955

LOUISIANA FULL OF PETRIFIED WOOD

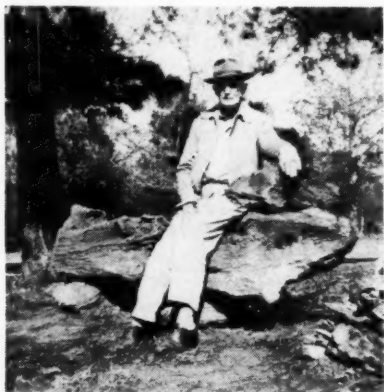
Editor's note: Louisiana is full of petrified wood which is found all over the state and often in huge logs. In De Soto Parish, for instance, around Mansfield logs weighing up to 3000 lbs. have been found and collected. In the Sunday, March 11, 1956, SHREVEPORT (LA.) TIMES, appeared such an interesting article on the De Soto Parish petrified wood that we are reprinting a good portion of it. The article is as follows:

Our Petrified Wood—'It's Something We Should Brag About'

by Keith Coulbourn,

Sunday Editor of the Times:

Native Ark-La-Texans don't need to be told that there's plenty of petrified wood around. It's all over the place. In fact, sometimes it gets in the way there's so much of it. And unless it does get in the way, usually its taken for granted, ignored. E. A. Ledgerwood, who lives about a mile east of Mansfield and doesn't stand to make a dime out of petrified wood even if it should suddenly take the place of gold, says Ark-La-Texans are missing a good bet in ignoring their petrified wood, sort of like if Florida should ignore its beaches or if Denver should ignore that it's a mile high or if Texas should ignore that its next to Louisiana.



W. Arthur Walker sitting on his petrified wood bench. This was the 1500 lb. petrified wood log on which he and Mr. Ledgerwood worked a half day to dig out. (Photo sent in by Mr. Ledgerwood; it appeared in the March 11, 1956 issue of the Shreveport Times).

In other words, petrified wood of the Ark-La-Tex is something to brag about. "It's fascinating—all this petrified wood we have," he said. "When you get to studying it a little, it's fascinating."

E. A. Ledgerwood, who works for the Louisiana State Department of Highways, has been interested in the local petrified wood for the past 10 years. Only in the past year, however, has his interest increased so much that when he talks about it in his high, soft voice, does a touch of emotion sometimes slip in; especially when he says: "It should be collected and put somewhere where more people can see it and enjoy it."

That's what he wants done.

His interest in petrified wood began about 10 years ago when he helped his father-in-law, W. Arthur Walker, with whom he lives, remove what was then considered as simply a dad-blamed rock the plow kept ramming into.

With his father-in-law and two other men and a many horsepower truck, E. A. Ledgerwood worked half a day on the thing, till it was unearthed and they could plainly see that it was not a rock—at least not a simple rock, but a log—a dad-blamed log of rock. It weighed 1,500 pounds.

With the truck they hauled the log to the side of the road and left it there for people to sit on if they wanted to. A lot of people noticed it through the years, man even sat on it. There was a lot of speculation about it and some who speculated—like E. A. Ledgerwood and his father-in-law—became aware of the extraordinary number of similar outcroppings from the ground of petrified wood and of the many that lay completely exposed on the surface.

Interest in the phenomena reached a peak about a year ago when E. A. Ledgerwood began collecting some of the surface "Fossils" (as geologists call them) from within a two-mile radius and piling them up in the form of a wall near the first one he had helped dig up. The wall is now about 35 feet long, two



Wall of petrified wood. Total weight about 6 tons. Largest piece, 8" x 30' x 6' weighs 1000 lbs.

feet high and one and a half feet wide. Its estimated weight is six tons.

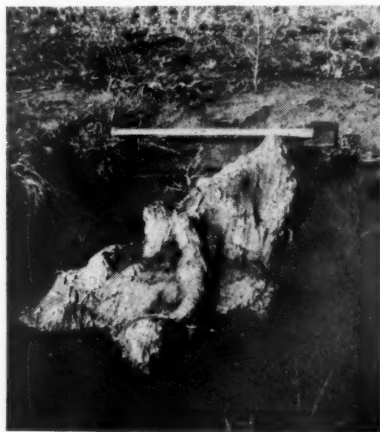
"I venture to say our petrified wood is between 30 and 100 million years old," he said, "not quite so old as Arizona's petrified forest, which is more like 200 million years old, but still plenty old when you get to thinking about it, and much older than the estimated half a million years under pressure in warm, fresh water it's thought required to petrify wood."

E. A. Ledgerwood says he thinks the petrified wood can be polished. "Probably not as shiny as the Arizona kind, but it can be polished and made more beautiful for our people."

Then, he says, it should be put on public display so people can see it and think about it, because, he says, people think about such things when they see them, thinking about its long, involved history, he says, and the fact that the Indians saw those very same petrified logs and roots and the Spaniards and

the French who came here saw them, too: "And the logs," he said, "think what they've seen."

He was holding a piece of the petrified wood in his hand. With a finger he had traced the grain of it while talking. He put the piece of wood down now and said, "It should be put on display somewhere. I'll give the wood



Not all of Louisiana's petrified wood is found on dry land. Here is a huge specimen resting in water.

I've collected to whoever'll do it—to a group if they'll do it. I'm not a rich man," he said, "but I'd even do it myself if no one else does. I'll pay for it somehow—dollar down, dollar a week." He laughed. "Sounds silly, I know, but we really shouldn't ignore our petrified wood the way we do."

Appreciative of R & M!

Editor R & M:

Enclosed find \$3 for another year's subscription for that splendid magazine that has given me more pleasure and knowledge of minerals. May God bless you in the endeavor to supply us with new and wonderful discoveries of Rocks and Minerals!

Fred Nelson
2216 Elizabeth Avenue
Zion, Ill.

April 12, 1956

How do you do it?

Editor R & M:

There is one very important feature about your journal that can seldom be said of other publications. It is this. Every number is tops. There are no poor numbers or any single copy which is not very interesting. How do you do it?

N. J. Busby
P.O. Box 77
Melrose Highlands 77, Mass.

May 3, 1956

GEM SILLIMANITE FROM IDAHO

By J. L. Blalock, Hells Canyon Agate and Fossil Shop

213 Sycamore, Clarkston, Washington.

Editor's Note: A new and unique gem stone for Idaho, is sillimanite, which is found as pebbles and small boulders on gravel bars in Clearwater River in Nez Perce Co., Idaho. Although the mineral was known for many years, no one suspected its true identity until Mr. Blalock, being curious, had it examined by competent gemologists.

Hells Canyon is the deepest gorge in the world and was cut out of solid basalt by the Snake River. The Snake River forms a boundary between Oregon and Idaho for a few hundred miles south of Lewiston-Clarkston. The Clearwater River flows in from the east and empties in the Snake River at Clarkston, Wash. Sillimanite is found on a couple of gravel bars along the Clearwater River.

Antonio C. Bananno, Gemologist, of Washington, D. C., made the first analysis for me. I am quoting his report as follows:

"The stone which you sent me had me puzzled for a while, it looked like a white jade and I was ready to tell you that it was jade but my observations did not quite tally for jade. Microscopic examination with the petrographic microscope proved the material to be a biaxial positive mineral; jadeite is biaxial positive. Indices of refraction gave readings similar to jade but there was a little difference. The refractive indices for jadeite are:

Alpha beta gamma
1.654 1.667 1.659 (Larsen & Berman)

"Your specimen read very close to these. I made an X-ray determination and sure enough it was not jade but the mineral sillimanite. The refractive indices for this mineral are:

alpha beta gamma
1.659 1.680 1.660 (Larsen & Berman)

"I gave the specimen to the jade expert of the U.S. and he identified it as sillimanite. Since he has samples of all types of jade and jade-like materials and was desirous of having it in his collection, I took the liberty of giving him the specimen. I gave the specimen to Dr. H. Yoder of the Geophysical Laboratory of the Carnegie Institute, who is considered the best jade expert in the U.S. He is a friend of mine and a wonderful fellow."

I might add here that I have since sent Mr. Bonanno another piece of Gem Sillimanite for his private collection for him to use in teaching gemology.

Gem sillimanite has been found in a few

places on the Clearwater River, in two gravel bars only. That is the only place where the metamorphic condition necessary for the formation of sillimanite has appeared.

Gem sillimanite shows that it has been under terrific pressure as the majority of pieces are quite flat and quite often in perfect teardrop shape. No two pieces are of the same color. The predominating colors are cream, golden and ice-blue splashed with rich brown or black. A very few pieces are tinted red, pink or salmon. They range in size from thumbnail to over two pounds each. Up to date, there has been something like three hundred pounds found. Luckily of this amount I have the largest, finest collection in existence.

I have one single piece, the largest known, that measures 14x18x3, weight 34 pounds, of which I am sending you a picture. This picture was taken on black and I have some others taken on white background which I will send you very soon. I would be glad to have you choose one for a magazine cover picture. I cannot truthfully say this large piece was found on the Clearwater and would prefer you do not make this statement in R & M.

The first use of sillimanite was by our wild Nez Perce Indians. There is a sillimanite hammerhead which they used to break up rocks to make arrowheads. This hammerhead is in the possession of Ralph Williams of Peck, Idaho, a collector of Nez Perce Indian artifacts. No one knows who first found sillimanite locally. Several persons had some in their agate collections without knowing its identity. However, I was the first person to have a scientific identification made. From then on, the rush was on.

Our method of hunting sillimanite consists of hard work. We turn over large boulders on the gravel bars with some weapon (expecting to find sillimanite or a rattlesnake)—exciting work—never a dull moment.

Photo on the Cover

"I have in my collection the largest piece of gem sillimanite ever found. It measures 14x18x3 inches and weights 34 lbs. Up to now it has never been found in any other place in the U.S.A. except on the Clearwater River, above Lewiston, Idaho. It certainly is very rare and scarce."—note from Br. Blalock.

Photo on the cover is of this large sillimanite.

First Artificial Diamonds Presented To Smithsonian Institution

By Bernard W. Powell, National Association of Science Writers

341 Glenbrook Road, Glenbrook, Connecticut

On May 3rd of this year, Dr. C. G. Suits, Vice President and Director of Research for the General Electric Company of Schenectady, New York, presented to the Smithsonian Institution in Washington, D. C., a cluster of the first artificial diamonds made by a process recently developed by his firm. The presentation consisted of a 100-carat sample of diamonds mounted in a plaque and surrounded by other early-type laboratory diamonds. Acceptance for the Smithsonian was by Dr. Leonard Carmichael who will see that the diamonds become part of that organization's permanent historical record.

This event climaxes a 125-year quest by scientists and mineralogists of every country who have sought a method for duplicating that most-glamorous of all Nature's gem stones, the diamond. In 1954, the first announcement that GE had made very small but nonetheless 'true' diamonds on a laboratory scale was carried in newspapers everywhere. The recent ceremony, however, marks GE's successful development of its process into a pre-production stage where costs have been greatly lowered and every possibility of a new industry for this country is offered. "Industrial diamonds could become a \$200 million annual business within the next decade, if the cost of man-made diamonds can be brought down below those now being mined," says J. S. Gillespie, manager of the diamond project for the firm.

Every known test, including most notably analysis of crystallography by X-ray diffraction, has removed any doubt that the artificial diamonds are different from those mined from the earth in Africa and South America. Compared to the natural stones, Dr. Suits says the artificial ones are "at least as good and I think there is a chance they will be superior to the natural product for in-

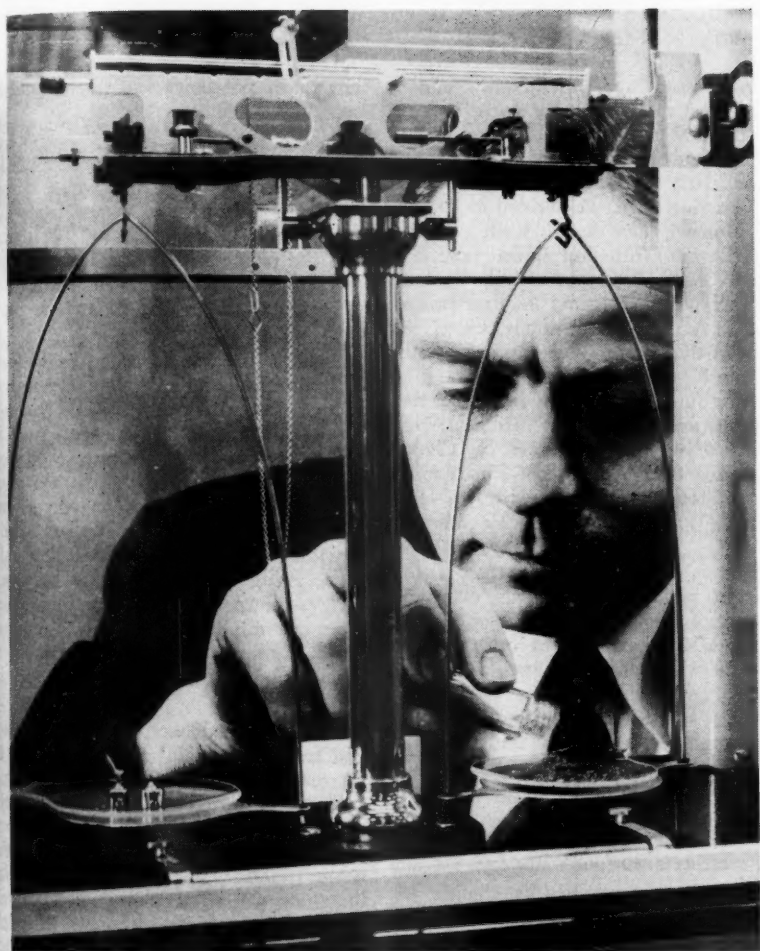
dustrial uses." The fascination and beauty of diamond gem stones often obscures the really important use of diamonds to mankind, and this is in industry. Here diamonds are utilized in a variety of ways for cutting, grinding, polishing, abrading and lapping processes needed to produce the goods demanded by our way of life. Of about 2½ tons of diamonds mined annually, approximately 90 per cent are imported by the U.S. which pays more than \$50, 000,000 for industrial diamonds in a typical year. The artificial diamonds are for industrial use only; no attempt is being made to develop or secure gem quality stones.

The scientific team which developed the artificial diamonds subjected a material still identified only as "a carbonaceous compound" to the highest combined pressures and temperatures ever attained by man. Specifically, this was 2,700,000 pounds per square inch and heat in excess of 5,000°F. Noteworthy is the fact that these conditions had to be maintained for long periods of time . . . In fact, the *industrial* importance of the whole development is paralleled by the *scientific* importance of achieving pressure vessels and apparatuses which permitted such experimentation. Dr. Percy Bridgman of Harvard University, Nobel-prize-winning physicist whose work in the high pressure field has been so outstanding, says of the development, "The field of high temperatures and high pressures opened up by the new techniques developed by the General Electric Company is a most inviting one for exploration. It is hard to put limits on what may legitimately be anticipated here in the way of new compounds or new alloys or new forms of old substances. Some day we may even be able to make the super-diamond that we could get if only the atoms of carbon could be compelled to assume



Historic cluster of diamonds made artificially by scientists at the GE Research Laboratory is illustrated here. Tiny crystals are plainly visible. Object in upper righthand corner is tip of a Rockwell hardness tester. The cluster is about $\frac{1}{4}$ " in diameter.

Photo by GE Research Information Center



J.S. Gillespie, manager of the diamond project, here is shown weighing the 100 carats that constitute the gift of his company to the Smithsonian Institution. Mounted in a special plaque. The diamonds commemorate an outstanding event in mankind's understanding and control over the inorganic world.

Photo by GE Carbonyl News Bureau

a closer-packed arrangement than in our present diamonds."

Duplicated by conditions that must obtain somewhere around 250 miles below the earth's surface, the cluster of diamonds presented to the Smithsonian is about 3/16" in diameter and consists

of many tiny stones, the largest weighing less than a hundredth of a carat. The 100-carat sample of man-made stones occupies a total space of approximately one cubic inch. The small crystals were divided into separate compartments on the presentation plaque.

NEW ENGLAND'S NATURAL BRIDGE

By RUTH H. WENTWORTH
135 Maine Ave., Portland, Me.

Two years ago, my family and I started on another of our trips, looking for the unusual, including minerals, geological features, and scenery for colored slides. After visiting Plymouth, Cape Cod and Provincetown, we decided to go over the Mohawk Trail again. Riding around the Hairpin Turn and down, nearly to North Adams, we noticed a sign on our right, New England Natural Bridge. Not having seen the sign before, we went in to explore. We were greatly surprised.

According to tradition this place was first discovered by a Mr. Hudson, first white settler in the town of Clarksburg. The British surveyed 6 square miles of territory including Adams, North Adams, Williamstown and Clarksburg in 1767.

This is easily accessible, there being a large parking area in the excavated section of the quarry. The owner gave us a leaflet describing the bridge and a piece of white marble claimed to be very pure.

There was a steep flight of steps to the top of the quarry, and then the tour. Above us across the stream bed was a dam made of blocks of the white marble, built in 1900 for water power. Back of this was a pond, and during wet weather a 30-foot water fall.

Following the path led by a guide, we looked down into a ravine cut through solid marble. It was 475 ft. long and varied in depths up to 75 feet. We were going down stream towards the Natural Bridge. Of course, there were queer formations such as the toadstool, the table rock and elephant's head.

Soon, there was the bridge, about 30 ft. wide and 15 ft. thick. The ravine under the bridge is about 45 ft. deep. The bridge itself consists of a huge ledge of marble, weathered gray; the white showing below only where the stream had purified it. The foliage was beautiful and the ferns on the huge boulders made attractive natural rock gardens. Be-

low queer pot holes and pools could be seen.

Under the bridge was a cave which Nathaniel Hawthorne described vividly in the summer of 1838 while staying in North Adams as a tourist from July 26 to Sept. 11. He explored the stream and the ravine with its bridge and cave, revelling in its beauty. He made note of visitors' names carved in the rocks even at that time.

This marble was deposited in the form of sea-shells, sand and mud at the bottom of Cambrian and Pre-Cambrian seas about 500,000,000 years ago. And in the Cenozoic period great glaciers covered this area. About 20,000 years ago the ice cap started to recede and it was then that the Niagara Falls, Ausable Chasm and New England's Stone Bridge started to be cut by water.

We returned to our starting point with our minds on the past. Countless years had passed since the marble was formed and it was still there for all to see.

How far in advance, Nature had planned for this beautiful marble that was to be used for buildings, bridges, dams, bird gravel, purification of sugar, tooth-paste, tooth powder, face powder, paints, calcium tablets, medicines, and in the rubber industry. Marble is a granular limestone and effervesces in hydrochloric acid. It is a calcium carbonate with impurities. There are many varieties, such as fire-marble, shell-marble, and ruin-marble, plain greens, reds, grays, blacks whites. There are different variegations and there are coarse and fine marbles.

We clutched our piece of antiquity (marble) and rode down into North Adams, thinking only of the great past, until with a start we waked up and realized that we had to eat.

Editor's Note - New England's Natural Bridge is located at the foot of the Mohawk Trail, North Adams, Berkshire County, Mass.

HEULANDITE AND STILBITE

From Franklin, N. J.

By William C. Casperson

Minerals, even rare ones, may still be found on the Buckwheat dump at the Franklin, New Jersey, zinc mines, although the material has been picked over again and again.

Sometimes the results of even a casual find will be surprising when followed by close and minute observation.

We visited the dump last summer with some friends who had never been there, and Mrs. Casperson idly picked up a few small pieces of the porous gray dolomite rock on the theory that the innumerable small cavities in it are always interesting when put under the binocular microscope.

And so they turned out!

Upon examining the dolomite we found several vugs containing beautiful clear and brilliant crystals of heulandite. They occur in little groups of a few crystals each and are colorless.

In other cavities we found tiny stilbite crystals, hundreds of them, yellowish in color. These are situated on and around clear crystals of quartz, and occur in the familiar sheaf-like bunches and as individual crystals. On the outer surface of the dolomite the stilbite lies in flat rosettes.

In some forty years of collecting and studying the Franklin minerals I have never before seen exactly this same association of zeolites with the dolomite, although the zeolites heulandite and stilbite have been found in the Franklin mines.

Palache's classic work on the Franklin minerals, USGS Professional Paper 180, says: "Heulandite has been seen only once.....from the 1000-foot level in the Sterling Hill mine." (Ogdensburg).

Further, he says: Stilbite was found in clusters of indistinct crystals.....in pegmatite." Palache also reported stilbite from the 900-foot level in the Sterling Hill mine.

The crystals of heulandite and stilbite which we have are microscopic, to be sure, but are beautifully crystallized and unmistakable.

This occurrence would have been passed by and never observed had it not been for the binocular examination. This fact clearly demonstrates the usefulness of the binocular microscope in the study of minerals and the possibility, even probability, of finding with enjoyment many beautiful crystal formations entirely lost to the ordinary vision.

The dolomite rock also contains small flakes of graphite, as it usually does, with sphalerite both black and honey-colored, and fine crystals of dolomite.

R & M for Me!

Editor R & M:

The only thing that could make R & M more appealing to me would be to make it a monthly. If all the other gem and mineral magazines combined into one, and I had to take either R & M or the composite one, I would certainly take R & M. This is not an exaggeration.

Galen Rowell,
1061 Miller Ave.
Berkeley 8, Calif.

April 14, 1956

Well satisfied!

Editor R & M:

Please consider me as a subscriber from now until further notice; just bill me yearly. Need I say more to tell you I am satisfied with your magazine?

Hartley W. Ridgway
104 Buffalo St.
Jamestown, N. Y.

Jan. 17, 1956

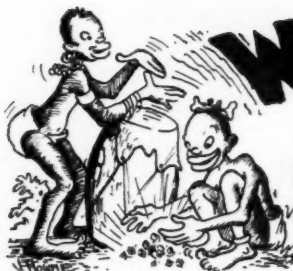
R & M is a good reference!

Editor R & M:

I recently had to write a term paper in college, I used my back Nos. of ROCKS AND MINERALS as references and the paper turned out fine. R & M sure contains a world of information if you just look for it.

Bill Cole
408 Dickinson St.
Chillicothe, Mo.

April 24, 1956



WORLD NEWS ON Mineral Occurrences

ITEMS ON NEW FINDS ARE DESIRED
PLEASE SEND THEM IN.

ALABAMA—Beds of marble of great beauty have been found along the Cahaba River in Shelby County, Ala. The colors are gray with red veins, red and yellow buff with fossils, white crystalline, clouded with red and black.

ARIZONA—R. A. Richard, Box 44, Morristown, Ariz., has sent us an item on a location where interesting quartz xls may be found. Here is the item, dated, March 28, 1956:

"An occurrence of interesting quartz crystals may be reached by taking off, from Congress Junction, Arizona (Hiway 89) on Highway 71-93, just north of the small town of Congress. Follow Hiway 71 two miles—at this point Hiway 93 takes off, to the northward, toward Kingman, Arizona,—turning north, on Hiway 93, keep a look out, to your right, for a sign reading "Gypsy Ranch"—follow this ranch road in a short distance (perhaps two miles) to where a series of test holes have been dug, close by the road, and fenced-in with barb wire.

"All around the area, and thru the hills close by, quartz crystals, of odd, and unusual form may be found. Most of these crystals will be opaque—but many are doubly terminated, recapped, with iron coatings—or showing inclusions, penetrations, 'scepter' form, ect. Limonite cubes (pseudo pyrite) may be found, also, either free, or embedded in the quartz crystals. Close by the fenced-in holes may be found excellent, clear, doubly terminated quartz xls, from size of a match stick, in diameter, to almost as fine as hair, nothing spectacular.

Time you need, from Junction of Hiway 89, will be less than a half hour. Road is not bad. Do not believe anyone interested in odd, or unusual quartz xls will regret taking a couple of hours for this side trip."

ARKANSAS—A find of considerable interest, which has received much publicity in newspapers and other media, was made by a Dallas, Texas, housewife (Mrs. A. L. Parker) on Sunday, March 4, 1956. The find was a 15.33 carat diamond, valued at over \$15,000, and it was picked up at an abandoned diamond mine near Murfreesboro, Pike Co., Ark. Murfreesboro has the only diamond mine in the United States and though the mine is no longer in operation it has been "opened up" as a tourist attraction under the name of "Crater of Diamonds."

Mrs. Parker's diamond, which has one flat, cleaved side is the second largest diamond ever found in the the United States. It is second in size only to the 40.23 carat rose-tinted Uncle Sam diamond mined a number of years ago at the same mine in Arkansas.

Howard A. Millar, Manager, Crater of Diamonds, Murfreesboro, Ark., is a subscriber for R & M and we wrote him for confirmation on the big find. Here is his reply, dated March 28, 1956:

"Your letter has been received by us, and I want to first tell you how much we enjoy ROCKS AND MINERALS; it is a great help to us, both in buying minerals and in selling them. We have quite a collection of fine minerals here in our gift shop, some from the Crater but also

from all parts of the world.

"The story of the fabulous diamond find is true, it was found Sunday, March 4th, by Mrs. A. L. Parker of 4430 Woodfin Drive, Dallas, Texas. Weight, 15.33 Cts. The fine quality and color of this diamond was even more wonderful than its size. It is of the very highest quality of blue-white diamond. There was not one speck of carbon or other imperfection in the stone. This is very rare in a diamond of that size. The size of the stone is $1\frac{5}{8}$ in. long, $\frac{5}{8}$ in wide, $\frac{1}{4}$ in. thick. It was a cleavage off the side of an octahedron probably weighing as much as 300 carats. We evaluated the diamond here at around \$15,000.00, and later when I met the cutter, Mr. Harold Branch of the cutting firm, Schenck & Van Haelen in Dallas, he assured me I was, if anything, conservative in my evaluation. He stated that after he finished cutting the diamond it would possibly be worth from \$25,000.00 to \$30,000.00. This is due to its very fine color and quality. It will be cut into a marquise.

"If you would like confirmation of this from another source you might contact Mr. Harold Branch, Schenck & Van Haelen Inc., 56 W. 45th St., New York 17, N. Y.

"Since the above diamond was found we have been unable to stay up with our mail. We are having new folders printed and will mail one to you as soon as they come from the printer. We will be glad to keep you informed of unusual happenings with us. The Sunday following the find by Mrs. Parker we had a Mr. Boyce Nash of Batesville, Ark., find 7 diamonds—this is almost unbelievable. We had continuing rains here during most of January and February and many diamonds must have been uncovered during that time. Let me know any time I can help you. Thanking you."

CALIFORNIA—Patrick Baird, 2805 Chester Ln., Bakersfield, Calif., has sent us a nice loose shark's tooth, gray in color and $1\frac{1}{2}$ inches long. The label

reads, "Petrified Shark's Tooth from Shark's Tooth Mountain in the Kern River Oilfields, near Bakersfield (Kern Co.), Calif. In his letter, dated Feb. 23, 1956, he tells us about its occurrence:

"These teeth can be found embedded in a white, hard-packed, gypsum-like material high on a hilly bluff about one mile from the north bank of the Kern River, where the River passes through an area known as Hart Memorial Park. This is in the Kern River Oilfield area. White bleached teeth can be found on the surface of the ground, however the best preserved specimens come from six to thirty-six inches below the surface. A great deal of other petrified bone matter is also found here as well as fossilized shells. I usually use about a $1\frac{1}{4}$ inch mesh screen to sift my diggings when working in this area. The ground-mass breaks up into clods when digging here, and often the presence of the teeth can be detected by the points which stick out of the clods.

For anyone who may be in this area sometime and might be interested in finding some of these for themselves I will describe how to get to this location: Turn east on the north bank of the Kern River where it is crossed by Gordon's Ferry, drive east on this paved road (about 3 miles) until you reach the second, high tension power line, turn left on the dirt road under this power line for about one mile always keeping to the right wherever it branches. At the end of this road, which is about one mile from the paved road, there will be a large parking area and the first hill to the east will clearly show the pockmarks of the numerous small holes dug by the various local specimen hunters.

"I do not recommend fossil hunting in this area in mid-summer as it is more or less treeless and barren and the temperatures can be uncomfortably high. During fall, winter, and spring the area is always accessible."

COLORADO—Minerals and Gems, P.O. Box 8072, Albany, N. Y., have donated a lustrous black mass of samarskite associated with some flesh-colored feldspar. The locality for this fine specimen is Buena Vista, Chaffee Co., Colo.

CONNECTICUT — Hugh A. Ford, 110 Wall St., New York 5, N. Y., has sent us a very desirable specimen—Danburite from Danbury, Fairfield Co., Conn. In his letter, dated March 20, 1956, Mr. Ford writes:

"I sent you the danburite specimen by insured parcel post on the 13th of March. It came originally from the collection of George Ashby which was sold by the late John A. Grenzig some twenty-odd years ago.

"I will bear in mind your new With our Advertisers feature.

"ROCKS AND MINERALS still leads the field in my opinion!"

It is always a source of great satisfaction for a mineral collector to add to his collection a very rare mineral and especially if that mineral comes from the original locality where first found. A case in point is the above danburite whose exact locality the Editor of R & M tried in vain to rediscover.

Danburite, a boro-silicate of calcium, was originally described from Danbury, Conn. (Am. Jour. Science, 35, 137, 1839) by C. U. Shepard who named it danburite after that town. Since that time the exact locality has been lost.

Shepard, in his A TREATISE ON MINERALOGY, 3rd edition, New Haven, Conn., 1857, describes danburite as follows (p. 218):

"H-7.O G-2.83 - 2.97. Massive, disseminated in indistinct cleavable individuals, through feldspar, color yellowish or greenish white (sometimes honey-yellow, but usually pale straw yellow). Transparent to translucent, Brittle, fragile, and rather liable to disintegration, from exposure to the weather.

"Found disseminated through a white, foliated feldspar (mixed with quartz), forming a narrow vein in white dolomite at Danbury, Conn."

Since Shepard's time, wine-yellow to colorless crystals have been found at the locality.

The specimen sent by Mr. Ford consists of straw-yellow danburite xld in mass with xline green diopside (pyroxene)—a very nice 2 x 3 specimen.

DELAWARE—Coarse, white dolomite occurs at Hockessin, New Castle Co., Del.

FLORIDA—Howard B. Graves, Jr., 826 S. Ingraham Ave., Lakeland, Fla., sent us a specimen believed to be a petrified whale vertebra. It is a grayish dolomitic mass and comes from the Peace River Valley south of Bartow, Polk Co., Fla.

"From the Bone Valley Formation."—on label.

GEORGIA—Bob Daniel, prop. of Natural Gems, 795 E. Currahee St., Toccoa, Ga., has donated a nice cluster of sky-blue lazulite xls in a grayish, sugary quartz. The specimen comes from Graves Mountain, Lincoln Co., Ga.

"Am thinking of advertising this lazulite in R&M. I have a few loose xls of lazulite but they are very hard to get out of the matrix without breaking them up."—letter dated Jan. 31, 1956, from Mr. Daniel.

IDAHO—Silvery-white masses of arsenopyrite were mined for their gold content at Gold Hill, Boise Co., Idaho.

ILLINOIS — The following letter, dated April 6, 1956, comes from H. E. Chelf, 131 Terrace View Lane, Peoria, Ill.

"Three weeks ago I spent some time in Pope and Harding Co., Illinois, seeking out some good to unusual fluorite and allied specimens. My luck was so good we plan a return trip soon.

"The wife and I, along with 'Teechie' our Boxer, spent Easter Sunday near Hamilton (Hancock Co.), Ill., combing the bluffs along the R.R. south of there for about five miles. Our loot consisted of 60 to 75 nice geodes; of the group

we kept two with millerite, one with pink dolomite and two with calcite for ourselves. The others will be for sale or trade to the summer rock-hound trade as they come through.

"Now for my favorite fluorite: we left Peoria and arrived at Rosiclare (Hardin Co.), Ill., at noon where we ate dinner then called on a few old acquaintances. I saw two older gentlemen who had been recommended to me as the people who could tell of the fluorite mining from away back. Taking notes and directions we returned to McLeansboro, Ill., where my mother-in-law lives. The next morning we were on our way bright and early.

"Near Eddyville in Pope Co., Ill., is an old mine dump, its name I could not find, we obtained some good to fair specimens of medium size.

"The prize came, however, in two 3" x 4" groups of red fluorite which is rare and a 2" x 5" piece with two perfect barite xls of 1" diameter on one end, they are a blue white color and perfect. Then on to Crystal mine (in Hardin Co.) between Rosiclare and Golconda. The new shaft produces good ore and often nice xld specimens, but up the hill and south is an old shaft with a large dump. Here we made a real find. #1, an aragonite specimen on yellow waxy fluorite 3" x 2" x 8" formed in trilling hexagonal plates, white and in a rose pattern cluster, "very unusual". #2, strontianite, a cluster of groups interwoven in yellow fluorite the needles about 1 1/2" to 2" long. Also very unusual. #3, sphalerite of a light red almost lavender color the xls from minute to 1/8" across embedded in what is locally called Rosiclare sand. This is a 5" x 5" specimen with lots of eye appeal. We also found four nice purple groups of 4" to 5" covered with calcite and quartz with a green stain possibly copper that I haven't examined thoroughly yet. All in all I brought back 43 very choice specimens, some of which I'll sell."

INDIANA — The following letter, dated March 31, 1956, comes from Har-

old S. Johansen, RR1, Box 266, Fortville, Ind.

"Last year, about the time I took out my subscription for R & M, I got a permanent job with a gravel company who was just opening up a new pit. Now isn't that a tough job for a rock hound to have to watch 200 tons of crushed rocks an hour go by on conveyor belts! I have picked up many fine specimens of a lot of things from fossils to minerals to cutting materials. So from now on I am going to team up with my friend, Mr. Walter Reeves of Greencastle, Ind., to supply you with material from Indiana for your World News on Mineral Occurrences.

"First, I am sending you a piece of quartz full of black tourmaline. This comes from the gravel pit.

"The owner of the gravel pit doesn't mind an occasional rock hound looking around but he doesn't want a mob like at Muscatine, Iowa. I live at the pit in a trailer house and collectors who wish to do a little looking around are more than welcome. If possible, come on Saturday afternoon or Sunday when the plant isn't running and maybe let me know about the visit."

Fortville is in N.W. Hancock County close to the Hamilton County line; the gravel pit is close by, just over the line in Hamilton County. Mr. Johansen has a Fortville mailing address and a McCordsville phone.

The 1 1/2 x 2 inch specimen consists of tiny, slender, black tourmaline xls densely coating massive smoky quartz which is so full of black tourmaline as to appear black.

IOWA — A recent letter from Mrs. Edwin P. Olson, Box 425, Beresford, S. D., had this interesting paragraph:

"At Klondike (Lyon Co.), Iowa, about 20 miles northeast of Canton, S. D., is a huge gravel pit in which I hunted specimens. I found a petrified sea urchin and I surely was thrilled about that. I also picked up many unusual rocks and many which resembled food which I am collecting for a table for some night at our rock club. I had

a table like this at our Girl Scout Jamborette here and it was a sensation. I had a huge piece of red limestone with crystals all over the top which resembled a ham roast, had baked potatoes, stalactite turnip; cookies, candy, rice, cantaloupe (Iowa geode), cake, pie, slices of bread, and rolls. This was really fun!"

Richard Tripp, 2811 West St., Ames, Iowa, in his letter dated Feb. 27, 1956, writes:

"I thought that you may be interested in what appears to be a new quartz crystal locality—near Decorah, Winneshek Co., Iowa. In my wanderings thru this area I discovered many small but beautiful quartz crystal-lined vugs in Devonian limestones. Most of the crystals were not over $\frac{1}{8}$ " in length but I did manage to find one loose crystal that was $1\frac{1}{2} \times 2\frac{1}{2}$ ". It is extremely brilliant and is absolutely flawless in every detail. I don't believe that even the 'Herkimer diamonds' of New York exceed the brilliance of this one. I certainly do wish I could have had time to prospect more of the area. Some day I am going to take more time and see whether this was just a rare one-of-a-kind specimen or whether there are more crystals to be won. Very certainly, if I do find more of the superb crystals I will not only send you a fine sample but also the exact location for them."

KANSAS—Glen E. Kiser, Douglass, Kans., has sent in some dark brown sand concretions which he found on U.S. Highway 81, northeast of Minneapolis, Ottawa Co., Kansas. A broken section on one concretion reveals smoky quartz grains cemented together by dark brown limonite.

KENTUCKY—Charles Johnson, 307 W. 4th St., Frankfort, Ky., sends in a clipping relative to some drilling that is going on mysteriously on a Cumberland River farm near Creelsboro, Russell Co., Ky. Speculation has it that the

drilling is for lead or zinc or silver or uranium. No one knows except the drillers and they will not talk.

"Russell County is in the southwestern part of the state and there are some oil wells there, as well as coal and iron. There are remains of old blast furnaces still standing along the Cumberland River."—letter dated Jan. 10, 1956, from Mr. Johnson.

LOUISIANA — The following letter, dated April 24, 1956, comes from E. A. Ledgerwood, Rt 2, Box 192, Mansfield, La.

"The area surrounding Shreveport, La., is studded with locations containing petrified wood.

"In Ward Five of De Soto Parish (a county in Louisiana is called a parish), several large show pieces of petrified wood remain in the timber lands, 12 miles east of Mansfield. I know the location of at least 30 large stumps and logs remaining in the ground. I enclose 3 pictures showing the petrified wood collected by W. A. Walker, who lives 12 miles east of Mansfield. Mr. Walker has collected so much petrified wood that he has built a wall of them—the total weight is about 6 tons and the largest piece is a slab 8" x 30" x 6', weight 1000 pounds.

"Petrified wood is common in the Ark-La-Tex (Arkansas-Louisiana-Texas) and especially in De Soto Parish. The wood is found lying loosely in the ground. The largest pieces in Mr. Walker's collection were found in the vicinity of Naborton (De Soto Parish). The color of these petrified wood specimens, several of which weigh a ton or more, is generally brown and/or white, but gray, red, dark blue and black are also found but in small quantities. The cavities of the wood are usually filled with small quartz crystals, chalcedony, and probably common opal (this fluoresces a pale green under an Argon lamp).

"I am sending you a specimen of the petrified wood with the quartz crystals."

A 3 x 6 inch gray specimen, densely coated by coarse drusy quartz, was received. On one side of the specimen, the quartz is all colorless, on the other it is all dark smoky. It is a handsome specimen.

The three photos that Mr. Ledgerwood sent in appear on pages 238 and 239 (Louisiana full of petrified wood) of this issue.

MAINE—The following letter, dated March 28, 1956, comes from Carl Anderson, 148 E. Central St., Natick, Mass.

"Here is an item for 'World News' that may be of some interest to readers of R & M.

"Some interesting minerals are found on Horseshoe Island, Winthrop, Kennebec Co., Maine (near the famous litchfieldite outcrop at Litchfield and West Gardiner).

"The island is located in Lake Cobosseecontee and only accessible by boat.

"The whole source of the interesting minerals found here is a rather small ledge, about 30 feet long and 4 feet high, bordering the shoreline on the west side of the island. The ledge consists mainly of two types of metamorphic rocks. One, mainly an orthoclase-actinolite schist, contains small amounts of aragonite (fl. and phos.), biotite, calcite, limonite and sillimanite (fibrolite). Often small calcite veins cross the schist and these veins yield actinolite xls, xline sillimanite and xline smoky quartz.

"The other and more common metamorphic rock is composed almost entirely of quartz. Various minerals are present here but only in tiny quantity.

"Common pegmatite borders the metamorphic rock vertically; this rock has only its common components.

"The entire ledge is fairly weathered and workable. More and better specimens will undoubtedly be found here in the future.

"This is completely new data as far as I know for the town of Winthrop."

MARYLAND—Massive, brownish-red hematite has been found at Frostburg, Allegany Co., Md.

MASSACHUSETTS — James W. Burke, 180 Montague Rd., No. Amerst, Mass., sends in the following item, dated March 13, 1956:

"Cordierite, associated with translucent feldspar (adularia?), has been found in blasting for the new Massachusetts through-way, three miles north of Brimfield in Hampden County.

"The dark blue cordierite is in blobs from 1/4 inch to 2 inches and makes quite good cabochon material, though I have seen none of faceting quality.

"The blobs are disseminated throughout the feldspar which varies from greenish to bluish-white.

"Fairly good moonstone can be cut from the feldspar although it is hard to find pieces free from fractures or specks of impurities.

"This cordierite location was described by Hitchcock years ago but the highway blasting makes the site of current interest."

MICHIGAN—Attractive specimens of reddish mottled and banded chert is found in the Traverse limestone north of Norwood in Charlevoix Co., Mich.

MINNESOTA—The world's largest rock crusher—a 1,250,000 pound giant that resembles an ice cream churner—has been installed at Reserve Iron Mining Co's plant in Babbitt, St. Louis Co., Minn. The crusher is to pulverize taconite, an exceptionally hard rock peppered with iron ore which has to be ground flour-fine to recover the iron. Taconite exists in vast quantities in northern Minnesota and also in northern Wisconsin and upper Michigan.

The huge rock crusher was built in a hole sunk 167 feet into solid granite. It pulverizes rock at the rate of 60 tons a minute.

MISSISSIPPI—Lignite (brown coal) occurs near Reedsville, Itawamba Co., Miss.

MISSOURI—Marcasite, a pale brassy sulphide of iron, has been mined at Leslie, Franklin Co., Mo., and utilized in the manufacture of sulphuric acid.

MONTANA—Gerald Navratil, 243 Farragut Parkway, Hastings-on-Hudson, N. Y., sends in the following item:

"Eight miles north of Libby, Lincoln Co., Mont., after you cross the Pipe Creek bridge and approximately one mile due west on a low ridge, on the dumps and in the drift of an old mine, are found iron pyrites, referred to locally as 'cube iron', reportedly measuring three or four inches on an edge.

"The locality was not inspected by the writer but verified by two or more sources."

NEBRASKA—James Allen, 322 W. 23rd St., So. Sioux City, Nebr., in his letter dated April 3, 1956, writes:

"Here is some collecting information on Nebraska that you may find of interest

"We have been exploring Dakota County for several years in the hopes of finding some good collecting localities. Up to now, one of the best localities is about 6 miles north of Jackson where good selenite xls and roses are found. Some of these are 5 and 6 inches long, xling in the customary diamond and fishtail shapes. A crust of xline sulfur covers much of the sandstone in the area and there is a large abundance of good pyrite cubes associated with the selenite. On the cliffs above the deposit, many shell fossils are found."

NEVADA—Liberty Copper Pit, 3 miles south of U.S. 50 (Lincoln Highway) near Ely, White Pine Co., Nev., is one of the largest open-pit mines in the world. It is over a mile long and over 800 feet deep. Some beautiful copper minerals have come from this pit.

NEW HAMPSHIRE—Brown anthophyllite has been found in the talcose rock at Richmond, Cheshire Co., N. H.

NEW JERSEY—Raymond Conover, Stone Ridge, N. Y., sent us a clipping which stated that drilling for monazite was begun last October in Morris County, N. J.—along Tanners Brook, between Chester and Long Valley. Monazite is a phosphate of the cerium minerals, (Cerium, didymium, lanthanum) and other rare-earth metals. According to the clipping, this is the first time this sort of drilling has been done for monazite in the U.S. The monazite was discovered by local uranium prospectors on property owned by James O. Fish, who agreed to the drilling by Eastern Uranium, Inc.

NEW MEXICO—A handsome specimen of a barite rose (a mass of platy xls) white in color but stained brown, was donated by John S. Albanese, P.O. Box 221, Union, N. J.

"Barite Rose, south end of Organ Mts., near Bishop's Cap, Dona Ana County, New Mexico."—on label.

NEW YORK — "A few days ago I mailed you two specimens of fossil trees. One of them is the *Eospermopteris* or Gilboa tree. This is to be found in quite a few different localities in the Catskill Mts. (New York). The other is *Archaeosigillaria* or club moss. I know of but one locality for this where it is associated with *Protolpidodendron*, a specimen of which I hope to send you one of these days.

"During the past summer I located two more species of fossil trees in our area. Previously unknown in the Catskills, they are identified as *Colpodexylon* and *Tetraxylpoteris*. Identification is by Dr. Harlan P. Banks, Paleobotanist at Cornell University and by the staff at the State Museum at Albany, N. Y.

"During the construction on the Thru-way in Greene County (New York) I did some prospecting there. I collected two specimens of anthraxolite, the first ever reported from this area. This is a carbon bearing mineral. There is now a \$50 fine for even trespassing on the right-of-way of the Thru-way, so some good collecting is OUT."—letter dated

Jan. 17, 1956, from Vernon Haskins, Curator Durham Center Museum, East Durham, N. Y.

Two dark gray (almost black) slabs (limb sections) 2 x 5, 2 x 6 of the fossil tree *Archaeosigillaria* were received. They come from Durham, Greene Co., N. Y.

"In the attached package please find 4 mineral specimens. I am a subscriber for R & M and would like to have them identified.

The specimens are all pproxenes. Two side of an old road cut in the vicinity of Doodletown (Rockland Co.), N. Y."—letter dated Jan. 4, 1956, from E. Akers, Sr., 152 Lanza Ave., Garfield, N. J.

"The specimens were dug out of the are loose, greenish diopside xls, each 3 inches long; the 3rd is a mass of greenish diopside xls, while the 4th is a loose 1 inch black augite xl.

NORTH CAROLINA—"Am sending you under separate cover one pound of the massive epidote which is average or representative of the materials we have advertised for sale in R & M (Nov-Dec, 1955, p. 638). As you will note, it runs from solid epidote to epidote in quartz. This material cuts very nice gems and I hope you cut some for your collection.

"I am rather new in the mineral business having opened my shop one week ago, but hope to be in a position to supply most of the cutting material from this area by next spring.

"The epidote comes from Cranberry, Avery Co., N. C.

"This material has been graded to get the best from that location. Have one chunk 17 x 17 x 6 inches, it is triangular in shape and is good cutting material. Don't know how much it weighs but must be in the 50 to 60 lb. range. Most of this material for sale runs about fist to egg size. Though there are larger sizes, they are not too

plentiful and in most cases do not grade as well."—letter dated Nov. 1, 1955, from Bob Daniel, prop. of Natural Gems, 795 E. Currahee St., Toccoa, Ga.

The epidote is pistachio-green in color and associated with massive smoky quartz.

NORTH DAKOTA—Interesting specimens of brick-red scoria have been found at West New Salem, Morton Co., N. D.

Scoria is a rough, clinker-like, more or less vesicular mass of lava.

OHIO—L. F. Grashel, 1702 Highland Ave., Portsmouth, Ohio, sent in an interesting limestone specimen which is dark gray in color and full of fossils (shells, corals, etc.—some shells fl. brown under long wave).

"This comes from Ohio Brush Creek at the famous Serpent Mound in Adams County, Ohio. The creek bed abounds with this fossiliferous limestone."—on label.

OKLAHOMA — "I am sending you some 'Indian Money,' that is what we call it here. It is found in Buffalo Creek, near Selman (Harper Co., Okla.); not very much of it here."—letter dated Nov. 9, 1955, from Mrs. A. H. Huckaby, Box 126, Selman, Okla.

The "Indian Money" turned out to be loose, brownish, 6-sided aragonite xls, 1/2 to 1 inch diam.

OREGON—From Hampton, Deschutes Co. Ore., we have a black and red mottled obsidian that was sent in by Roberta Jensen, 8709 S.W. 56th, Portland 19, Ore.

PENNSYLVANIA — An interesting specimen of coxcomb marcasite, black in color (altering to limonite) on grayish, xline limestone, has been sent us by Floyd R. Faux, 635-4th Ave., Bethlehem, Pa.

"Saucon Valley near Bethlehem (Northampton Co.), Pa.—rare find."—on label.

RHODE ISLAND — Anthracite coal has been mined intermittently for a century at Portsmouth, Newport Co., R. I. The mines are now abandoned.

SOUTH CAROLINA—When lightning strikes a sandy area it often melts the sand, forming long, slender, fragile, glassy tubes which penetrate the sands for many feet. These glassy tubes (smooth on the inside, rough on the outside) are called fulgurites, a name derived from the Latin for thunderbolt. We have an interesting fulgurite, gray in color, 1/4 inch in diam. and 5 inches long, that comes from Dixiana, Lexington Co., S. C.

SOUTH DAKOTA—Charles Preheim, Freeman, S. D., has sent in a specimen consisting of black staurolite xls with some tiny red garnet (almandite) xls in schist on massive smoky quartz.

"Keystone, Pennington Co., S. D."—on label.

TENNESSEE—James R. Broyles, P.O. Box 311, Greeneville, Tenn., has sent us a number of small, loose doubly terminated (some show no prisms), rock xls. These limpid quartz xls resemble the Herkimer "diamonds" from Herkimer Co., N. Y.

"These crystals come from the Mosheim community, the 23rd District of Greene County, Tenn. Turning north at Mosheim off Hi-way 11-E and going to end of black top, turn right, go 200 yards, and the hill bearing these pretty Greene Co. 'diamonds' is on your left.

"I am sending you a rock containing the crystals. You can find the crystals only where this kind of rock comes up through slate."—letter dated March 21, 1956, from Mr. Broyles.

The rock is a gray, compact limestone.

TEXAS — Grayish-blue chalcedony masses which fl. bright green under the short wave have been found around Alpine, Brewster Co., Texas.

UTAH—A rich specimen of uraninite (pitchblende)—a black lustrous mass—has been donated by Minerals and Gems, P.O. Box 8072, Albany, N. Y.

"Charles Steen—Mi Vida Mine, near Moab (Grand Co.), Utah"—on label.

VERMONT—Large, yellow, transparent dolomite xls in talc have been found in Roxbury, Washington Co., Vt.

VIRGINIA—"The enclosed tumbled stones are from the Bull Run soapstone quarry that belongs to R. W. Burke, Rt. 659, Centreville (Fairfax Co.), Va. He went to the quarry with us when I asked him what was down there besides soapstone and talc.

"We ran across this material and when he saw how delighted I was with it, he said, 'Lordy, Lordy, you mean that's some good? We dumped many tons of that just to get it out of the way.'

"He said anyone is welcome. His quarry is good for leasing if anyone wants soapstone and talc. Hasn't been worked for a while. Quarry and his home are 3 1/2 miles from town on Route 659.

"I believe the material we collected is more flint than jasper for it splinters and breaks in cubes. Tough to slab, but polishes gorgeously. Don't have any slabbed on hand or I would send you a slab."—letter dated March 24, 1956, from Mrs. Hilda Chance, 611 Johnson Ave., Linwood, Penn.

The two specimens received are moss agates consisting of dark red moss (jasper) in bluish-gray chalcedony. They have a nice polish.

WASHINGTON — Dark green to black serpentine occurs at Granite Falls, Snohomish Co., Wash.

WEST VIRGINIA—Small white calcite xls have been found in Terra Alta, Preston Co., W. Va.

WISCONSIN—Meredith A. Frey, Mount Hope, Wisc., has sent in an interesting malachite specimen consisting of green botryoidal masses—also green fibrous

masses—both in same matrix, a brownish clay. Locality for the specimen is La Farge, Vernon Co., Wisc.

WYOMING—An interesting amphibole, a red, compact fibrous mass (resembles tremolite except for color) has been sent us by John S. Albanese, P.O. Box 221, Union, N. J.

"Red amphibole, Encampment (11,000 feet above sea level), Carbon Co., Wyo."—on label.

ANDORRA—From Andorra, one of the world's smallest republics, situated between Spain and France, we have a number of specimens sent us by Juan Montal, Plaza Sgdo, Corazon No. 1, Vil-lafranca del Panades, Spain. The specimens all come from the little town of Encamp, in the central part of the country—the specimens are:

Amphibole (actinolite) — Greenish, compact fibrous mass with white, coarse xline calcite. Found 1 kilo (about 3200 ft.) s.w. of Encamp.

Biotite—Lustrous black plates, some slender, in gray granite. Found 1 kilo (about 3200 ft.) s.w. of Encamp.

Calcite—White, platy mass (rather unusual formation as it is made up of thin, slightly wavy plates totalling 1 inch in thickness). Found 1 kilo (about 3200 ft.) s.w. of Encamp.

Pyrite—Small brassy-yellow masses in brownish ferruginous quartz. Found 3 kilos (about 9600 ft.) s.w. of Encamp.

Quartz—Bluish-gray mass with a few scales of silvery muscovite. Found 2 kilos (about 6400 ft.) s.w. of Encamp. *Ferruginous quartz*, brownish, roughly xled. Found 2 1/2 kilos (8000 ft.) s.w. of Encamp.

Granite—Gray mass consisting of black biotite, white feldspar, and smoky quartz. Found 1 1/2 kilos (about 4800 ft.) s. of Encamp.

Limestone — Grayish-green compact mass; also grayish compact mass. Both found 3 kilos (about 9600 ft.) s.w. of Encamp.

Quartzite—White mass. Found 1 1/2 kilos (about 4800 ft.) s. of Encamp.

Schist (Mica)—Dark bronzy-brown—appears to be made up chiefly of *bronzy-brown mica*. Found 1 kilo (about 3200 ft.) w. of Encamp.



Village of Encamp, Andorra

AUSTRALIA — Saleite, a hydrous phosphate of magnesium and uranium, occurring in lemon-yellow incrustation on pinkish granite, was sent us by Roger C. H. Doo, 74 Day St., Rm. 2, Drum-moyne, Sydney, Australia.

"Saleite on granite. Hexley Lease, Cloncurry, Queensland, Australia."—on label.

AUSTRIA — Allophane, a mass of greenish incrustations forming veins in what may have formerly been a slaty rock, has been donated by John S. Albanese, P.O. Box 221, Union, N. J.

"From Brandenburg, Styria, Austria."—on label.

BOLIVIA—"The samples I send you of molybdenite and stannite are from LaFabulosa mine which is located in canton Challana, province Larecaja, department of La Paz, Bolivia.

"Challana is the name of a little town and also of the river that runs across the town.

"If you have a good map of Bolivia you can see the river inside 16° and 68°."—letter dated Feb. 27, 1956, from Stuardo Jordan R., Casilla 1362, La Paz, Bolivia.

The molybdenite sent us is a pure, platy, lead-gray mass. The stannite is a steel-gray mass containing small masses of brassy-yellow pyrite and associated with massive, smoky quartz.

CANADA—From Roy M. Fitts, 39 E. Elm St., Yarmouth, Me., we have some banded, grayish to brown chalcodony pebbles which come from Thornes Brook, Havelock, N. B., Canada. Red quartzite pebbles were found with the chalcodony.

CHILE—Another interesting specimen received from John S. Albanese, P. O. Box 221, Union, N. J., is a pale pinkish, greasy mass of steatite (talc).

"From mines at Lirios, Copiapo, Chile."—on label.

COLOMBIA—"Enclosed are a few fragments of a specimen of milky quartz showing pseudo-cleavage. This comes from Medellin, State of Antioquia, Colombia. At first I could not believe it was quartz, but an x-ray determination confirms it. I hope to send you a photo of the specimen I have, with a short article."—letter dated March 31, 1956, from W. T. O'Gara, Dept. Exploration, International Pet. Co., Ltd., Edificio Colombiana De Seguros, Bogota, Colombia. Some small fragments received which look like white, platy albite. We shall await patiently for Mr. O'Gara's article which should prove to be a most interesting one.

CUBA—Joseph A. Schraut, Jr., 4125 Fillmore St., St. Louis 16, Mo., in his letter dated April 4, 1956, sends in an interesting report on Cuba, the largest island in the Caribbean Sea.

"Just a line to acquaint you with some mineral occurrences in Cuba. At Matanzas, about 15 km to the east, is a strip mine in serpentine-diorite that has a powdery-granular marcasite as the vein mineral but there is disseminated in the marcasite, chalcopyrite.

"Here and there are very pretty crystals of chalcantite and gypsum. Most of these are very small. An interesting sidelight to the mine are very pretty translucent masses of serpentine.

"At Veradero there is modern coral and great quantities of coral sand used for modern decorating in local and Havana homes and hotels.

"At Ceinfuegos one visits the Hana-banilla Falls in the Trinidad Mts. These are seven beautiful falls combining to fall about 1000 ft. They will be soon dry due to the river being diverted into a penstock for water-power. One collects a jumble of metamorphic rocks. But here and there can be collected large pegmatitic masses of creamy orthoclase with specks of quartz.

"At Salta de Soroa near the big orchid farm are the oldest rocks on the

Island exposed in fault blocks against the Oligo-Miocene. These are basal Mesozoic. There are giant fauna in these old rocks. Coral cups and ammonites over a foot across.

"At Pinar del Rio barite is being examined along with new finds of uranium and iron. Some chromite and copper mines are now being worked both in Pinar del Rio and Camaguey States.

"Just east of Havana on the Highway Central at the quarries of Santa Barbara one collects large masses of Mexican Onyx which take a polish. The banding is more pronounced than many in the States.

"At Madruga one collects sodalite-rich serpentine-diorite laying on top of dark glassy diorite. Also there are coralline limestone on top of all this in a wave terrace unconformity.

"At Batebano one collects from the no-quartz beach composed of nothing but seashells. Right across the bay one collects from the world-famous black beach and the famous marble quarries of Isle de Pines (Treasure Island). Now on the island iron is being mined also. The black beach is 90-95% ferro-magnesian minerals.

"Just to the south of Havana one collects large masses of asphaltum from outcrops and abandoned asphalt mines. Oil companies are now engaged in an all-out oil exploration program of seismic and wildcat drilling. One well produces almost pure gasoline which can be put right into a car. Oil seeps are all over the island especially near serpentine-diorite outcrops. Most of the non-igneous rocks have extremely well preserved fossils with all or almost all external features still intact. The School of Forestry has a tremendous collection of the most wonderfully preserved fossils open to the public. Another collection is in the Building of the Dept. of Agriculture in Havana's Rampa section.

"At Casablanca and at the Morro Castle peninsula is the big Havana fault. There are four members of the Havana formation and they are made quite complicated by this fault. The Casablanca

fm. here is quarried for stucco and mortar and building blocks.

"Most of Havana lies on Pleistocene, Eocene, and Miocene with some Oligocene here and there. There are fault blocks every 4 or 5 blocks in the bay-front-Malacon section. Fresh water can be gotten by only drilling down 50 to 85 feet rarely to 200 feet. There is some Recent coralline limestone lying on top of the wave terrace about L street.

"Cuba is in the midst of a great economic change. The big crop was and is still cane sugar but the Cubans are looking for other markets. As a result the island is undergoing an extensive geological and geodetic survey."

ENGLAND — Pseudomorphs are always interesting. An especially interesting one is kaolin, pseudo, after an orthoclase crystal, a very fine specimen of which was donated a few weeks ago by John S. Albanese, P.O. Box 221, Union, N. J. It is a 2 x 3 inch, loose, platy, gray crystal.

"Kaolin pseudo after orthoclase crystal. No. Goonbarrow Clay Pit, near St. Austell, Cornwall, England."—on label.

GREENLAND — Raymond Conover, Stone Ridge, N. Y., has sent us a clipping from the NEW YORK HERALD-TRIBUNE relative to a new mine (lead and zinc) that is to be opened by a Danish mining company in the frozen no-man's land of East Greenland, 140 miles north of the Arctic circle.

The average annual temperature in this region is 16°F, and winter storms often cover the land with 15 feet of snow. The company plans to open the mine by spring of 1956.

A town, Mesters Vig, has been built near the mine. The town has been specially built, with a central plant to heat all the homes.

The lead and zinc to be mined are in deposits of galena and sphalerite scattered through a vein of quartz.

Mining experts estimate that 20,000 tons of concentrates will be shipped from Mesters Vig each season.

NEWFOUNDLAND — In southeast Newfoundland, on Bell Island in Conception Bay (less than 15 miles west of St. John's, the capital), is Newfoundland's greatest iron deposit. The ore of the mine is an oolitic red hematite composed of small concretions.

Bell Island is 6 miles long, $2\frac{1}{2}$ miles wide, and rises abruptly from the sea to a general elevation of 220 feet. The underground workings are so long that they extend 4 miles out under Conception Bay. Raymond Conover, Stone Ridge, N. Y., sent us recently a clipping from the **NEW YORK HERALD-TRIBUNE** (New York City) Sept. 2, 1955, which reads:

"St. Johns, Nfld., Sept. 1, 1955—Steel and mining executives from Canada, the United States, England and Germany watched a new era of iron mining begin on Bell Island today.

"Lionel A. Forsyth, president of the Dominion Steel & Coal Corp., officially opened a trans-island belt conveyor system and a new ore concentrator. The conveyor is the longest of its kind in the world.

"It carries the red ore from the bottom of the shaft nearly four miles out under Conception Bay to the new ore concentrator on the surface. Then the processed mineral continues its journey by conveyor three miles across the island to loading pockets at Scotia pier."

SCOTLAND—Sandy Ramsay, 1015 Aikenhead Road, Kings Park, Glasgow S 4, Scotland, sent us a beautiful reddish, banded agate cabochon whose locality is the east coast of Scotland (on the North Sea).

"From Scurdie Ness, Angus, Scotland. Hand cut and polished about 90 years ago."—on the label.

SOUTH AFRICA—A nice white mass of amblygonite was sent us by John S. Albanese, P.O. Box 221, Union, N. J.

"Amblygonite. Steinkopf Reserve, Namaqualand, South Africa."—on label.

SPAIN—The following letter, dated Jan. 3, 1956, comes from Juan Montal, Plaza Sgdo. Corazon 1, Villafranca del Panades, Spain.

"I am glad to advise you that I have acquired the apatite area of Spain at Jumilla, Murcia Province. I hope to commence mining apatite at an early date. This greenish-yellow apatite fl. orange-red."

In Miers' *Mineralogy* (MacMillan & Co., Ltd.), London, England, appears this paragraph on p. 578.

"Jumilla (Murcia, Spain).—In cavities of a reddish decomposed volcanic rock associated with the hematite and calcite, are pale greenish-yellow, rough prisms of apatite; these are often doubly terminated, generally without the basal pinakoid. This variety of apatite is known as "asparagus stone"; it contains both fluorine and chlorine."

We hope Mr. Montal may soon have some nice apatite crystals for sale to collectors.

UGANDA—John S. Albanese, P.O. Box 221, Union, N. J., sent us recently some loose, lustrous black euxenite xls.

"From Kagadi, Buyaga, Buganda Province, Uganda, Africa."—on label.

VENEZUELA—From a subscriber in Venezuela (who does not want his name mentioned) comes this item:

"About 50 kms. S.E. of Cerro Bolivar, Venezuela, is a hill that is all crystallized quartz. I saw some nice specimens from the locality."

Education in Itself!

Editor R & M:

Enclosed is check for \$3 for my renewal for 1956. Thanks immensely for keeping the copies coming. R & M is an education in itself, and one who is interested in this field is almost an illiterate without it.
April 4, 1956

Gerald O. Robbins
P.O. Box 531
Stockton, Calif.

April 4, 1956

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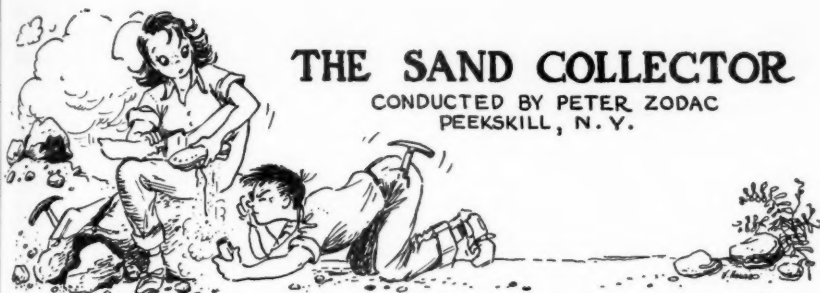
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THE SAND COLLECTOR

CONDUCTED BY PETER ZODAC
PEEKSKILL, N. Y.

Biotite sand from Prescott, Arizona

"My informant who brought me this sand tells me that he had picked it up from a ditch along the road about an hour's walk beyond Thum Butte (alt. 6522). This peak, an old volcanic neck, is about 6 miles west of Prescott. He says he walked in a general S.W. direction from the Butte for about an hour to find it."—letter dated Oct. 5, 1955, from O. P. McMican, Box 1793, Prescott, Ariz.

The sample is a fine grained black sand. It consists chiefly of black biotite with some smoky quartz, flesh colored feldspar, and a tiny amount of black magnetite. Prescott is in Yavapai County, Ariz.

Brookite sand from Magnet Cove, Arkansas

This sand is from Christy Hill in Magnet Cove (Hot Springs Co.), Ark. I don't know if you would classify this as a sand or not, since I am not a sand collector, but it was found above the brookite dumps (prospect pits) on higher ground, so I don't see how it could be washed from the dumps. I think you will find micro doubly terminated smoky quartz xls, brookite xls (micro) and quartzite in the sample."—letter dated Aug. 15, 1955, from Nolan De Laughter, P.O. Box 1404, El Dorado, Ark.

A coarse grained, dark brown sand is the sample. It consists chiefly of lustrous black brookite xls (many have good sharp faces) and smoky quartz xls (many have good sharp faces), and brown clay. A tiny amount of black magnetite (coated by brown clay) also present. No quartzite was seen. It is the clay which gives the sand its dark brown color.

River sand from Whitewater Canyon, Calif.

From Whitewater Canyon near Banning, Riverside Co., Calif., we have a sand sample that was sent us by Frank H. Waskey, Oakville, Wash.

The sample is a fine grained, gray sand. It consists of quartz (smoky, whitish), white feldspar, black biotite, and pale silvery-white muscovite. A small amount of lustrous black magnetite and a tiny amount of green epidote also present.

Beach sand from Fort Pierce, Fla.

From a beach on the Atlantic Ocean, 5 miles above Fort Pierce, St. Lucie Co., Fla., we have a sand sample that was collected for us by M. L. Peterson, 933 N. Longfellow St., Arlington, Va.

The sample is a gray, medium grained sand consisting chiefly of colorless quartz with some sea shells (chiefly brown but some white and gray also present).

Quartz sand from Centralia, Ill.

We are indebted to Glen E. Kiser, Douglass, Kans., for this sample which is a dark brown, medium grained sand. It consists chiefly of quartz (brownish, some colorless, some smoky) with small amounts of pinkish feldspar, brown limonite and black magnetite.

From hwy near Centralia, Marion Co., Ill." —on label.

Quartz sand from Waterloo, Iowa.

Mrs. Geo. Bergston, 816 Colleen Ave., Evanston, Waterloo, Iowa, collected this sample for us, which is a fine grained, brown sand. The sand is all brown quartz (quartz stained by clay).

"Taken from ditch while digging water main on Dundee Ave., Waterloo

(Blackhawk Co.), Iowa, 1953." — on label.

Garnet sand from Small Point, Maine

Here is a garnet sand from a new locality in Maine. It was collected for us by Roy M. Fitts, 39 E. Elm St., Yarmouth, Me. It is a dark red, coarse sand—practically all dark red garnet (almandine) which show crystal faces; a few grains of blackish biotite and smoky quartz also present.

"Sand from Small Point (Cumberland Co.), Me., at the mouth of the Kennebec River."—on label.

Quartz sand from Oxford, Mass.

"I am sending you some sand held together by hematite. Found a vein of this nearly a foot thick in a gravel bank at Oxford, Worcester Co., Mass."—from a recent letter from Wm. H. Robbins, RFD 1, Hampton, Conn.

The sample consisted of a mass of small quartz pebbles, stained a deep red by hematite (some pebbles stained brown by limonite); and a small amount of coarse, brown sand—all quartz (stained brown by limonite).

Lake sand from Higgins Lake, Mich.

Some few months ago we received a sand sample from William Laughlin, Rt. 1, Box 425, Clinton, Md. The sand comes from Higgins Lake, Roscommon Co., Mich., is fine grained, of a gray color, and is all quartz (chiefly colorless, some smoky, some brownish).

Quartz sand from Tonopah, Nevada

Paul O. Drury, P.O. Box 1028, Las Vegas, Nev., sent in this sand sample. It is a medium grained, dark gray sand. It consists of quartz (colorless, smoky, gray chalcedony), pinkish feldspar, black magnetite, and gray clay. Color of sand due to the gray clay.

"Collected on roadside of US 95 within the town limits of Tonopah (Nye Co.), Nev., on the north edge of the town."—on label.

Willemite sand from Franklin, N. J.

Franklin (Sussex Co.) N. J., is world famous for the number of different minerals found in its zinc mines. Though the mines at Franklin were closed down for good in 1954, interesting minerals

may still be found on its old dumps. Besides minerals, Franklin may also boast of an interesting sand—a willemite sand to be exact—which the conductor of this department found on his visit to the area on March 4, 1956. The exact locality for the sand is the west bank of the Wallkill River (in Franklin) at the bridge on Scott Road, about 300 feet west of Rutherford Ave. (Scott Road runs off Rutherford Ave.)

At the bridge the Wallkill is about 40 feet wide and at the time of our visit it was a swiftly moving water, clear and cold. A small "beach", about 5 feet wide and perhaps 75 or 100 feet long (we did not take special notice of its size) extends north of the bridge and it was from this beach that our sand was collected.

The sand is dark gray in color, and medium grained. It consists chiefly of calcite (colorless, white, brownish) with minor amounts of colorless to bronzy phlogopite, black biotite, colorless to pale brownish willemite (fl. green), and a small amount of black magnetite.

Aragonite sand from Selman, Okla.

"I am sending you a sand sample from Buffalo Creek, $\frac{3}{4}$ mile north of Selman (Harper Co.), Okla. Buffalo Creek is about 30 miles long. It heads at a place called Doby Springs, a group of soft water springs. But the water gets awfully hard before it gets 8 or 10 miles and where Buffalo Creek joins the Cimarron River it is salty. It is called the salt plains. The water is 50% salt and the salt will form on the sand several inches thick. A well was drilled in the river bed and they drilled through 40 feet of solid rock salt. All rivers and creeks in this part of the country have sandy beds, some places there are quicksands."—letter dated Nov. 9, 1955, from Mrs. A. H. Huckaby, Box 126, Selman, Okla.

The sample received is a light brown, medium grained sand. It consists of light brown aragonite and quartz (chiefly colorless, some brownish and smoky also present). Some of the aragonite fl. pale yellow under long wave.

Gold sand from Landrum, S. C.

Landrum is in the N.W. corner of Spartanburg Co., S. C. From Landrum we have a gold bearing sand sample that was sent us by James R. Broyles, P.O. Box 311, Greeneville, Tenn. The sample is a fine grained, black sand. It consists chiefly of lustrous black magnetite with smaller amounts of green epidote, pale brownish monazite, colorless zircon that fl. orange, and a few flakes of yellow gold.

"The sand sample I sent you comes from two very small brooks at Landrum, S. C., one, west, containing the larger gold and the other, south (1 mile), containing real fine gold.

"Anywhere in Spartanburg County, S. C., or the adjacent Polk County, N. C., in almost any creek, brook, spring, branch, or ditch, you can pan out a little gold. Round like bird shot, or long wire shape is the gold."—letter dated March 21, 1956, from Mr. Broyles.

Quartz sand from Old Hickory, Tenn.

This is a fine grained, brown sand consisting chiefly of brownish quartz with some whitish feldspar. It was sent in by Miss Juliette Desport, 1229-17th Ave., So., Nashville, Tenn.

"Old Hickory Bank Sand, Old Hickory (Davidson Co.), Tenn."—on label.

Quartz sand from Gladewater, Texas

Mrs. Ruby Renfro, 2901 Bomar Ave., Fort Worth 3, Texas, sent in this sand sample which is medium grained and reddish-brown. It consists chiefly of quartz (colorless, brownish, reddish, whitish) with some light to dark brown limonite.

"This sand comes from west of Gladewater (Gregg Co.), Texas, and was dug out of the side of a hill in a road cut. This layer of sand was between two thick layers of dark red sandstone."—on label.

Creek sand from Volcano, W. Va.

From T. W. James, 923-32nd St., Parkersburg, W. Va., we have this sand sample which is a coarse, brown sand. It consists chiefly of brownish quartz and brownish sandstone. Some smoky

quartz, gray sandstone, red slate, and silvery muscovite also present.

"From Walkers Creek, Volcano (Wood Co.), W. Va."—on label.

Quartz sand from Wisconsin Dells, Wisc.

We are indebted to Mr. and Mrs. Geo. C. Barclay, Box 433, Newport News, Va., for this sample, a medium grained, brownish sand which is all quartz (chiefly brownish, some colorless).

"Potsdam sand. Wisconsin Dells (Columbia Co.), Wisc."—on label.

Quartz sand from Devil's Tower, Wyo.

The first National Monument in the U.S. was "The Devil's Tower" in Crook County, Wyoming—an ancient volcano's throat 865 feet high, set aside in 1906. From the site of the Devil's Tower we have a sand sample that was collected for us by Mrs. Ed. P. Olson, Beresford, S. D. The sample is a fine grained, orange-colored sand consisting entirely of orange-colored quartz.

"Sand from Devil's Tower, Wyo."—on label.

Coral sand from Crooked Island, Bahamas

The Bahamas, a group of 20 inhabited and many uninhabited islands and rocks off the southeast coast of Florida, belong to Great Britain. The climate of the islands make the Bahamas a favorite winter resort for tourists.

From one of the islands (Crooked Island), we have a sand sample that was collected for us by M. L. Peterson, 933 N. Longfellow St., Arlington, Va. The sample is a coarse, cream colored sand which consists chiefly of coral (cream colored, also some reddish) with some sea shells (white, cream color, yellowish). Fl. yellow under long wave.

"Sand from western beach on Crooked Island, South Bahamas"—on label.

River sand from Challana, Bolivia

"Challana is the name of a little town in western Bolivia and also of the river that runs across the town.

"If you have a good map of Bolivia you can see the river inside 16° and 68°."—letter dated Feb. 27, 1956, from Stuardo Jordan R., Casilla 1362, La Paz, Bolivia.

The sample is a coarse, white sand. It consists chiefly of white feldspar and silvery muscovite with small amounts of black biotite and smoky quartz.

"Sand from the Challana River in Challana, Bolivia."—on label.

Lake sand from Roussay Lake, Canada

This is a dark gray, medium grained sand. It consists chiefly of colorless quartz (some smoky also present), with minor amounts of pinkish, gemmy garnet, feldspar (white, pinkish), black magnetite, gray limestone and white shells. Donated by Jack M. Park, 148-2nd Ave., Yorkton, Sask, Canada.

"From Roussay Lake (Sask) which is about 15 miles southwest of Yorkton"—on label.

Shell sand from Nukufetau, Ellice Islands.

The Ellice Islands constitute a British Crown Colony in the Pacific Ocean. The Ellice group is comprised of nine islands of which Nukufetau is one. From Nukufetau we have a sand sample that was sent us by Max Haleck, Pago Pago, Tutuila, American Samoa.

The sample is a coarse, white sand. It consists almost entirely of sea shells (chiefly white, but brown, pink also present). Some white coral is also present. Sand does not show much rounding and varies in size from tiny to large pieces.

Beach sand from Douglas, Isle of Man

The Isle of Man (belongs to England), situated in the Irish Sea, midway between England and Ireland, is 33 miles long and 12 miles wide. Douglas, the chief town, is finely situated on a wide bay on the east coast.

From the beach at Douglas we have a sand sample that is medium grained, and of a gray color. It consists chiefly of quartz (colorless, smoky, brownish) with a small amount of white sea shells which have an opalescent play of colors. A tiny amount of black magnetite also present. The sample was sent us by Sandy Ramsay, 1015 Aikenhead Road, Kings Park, Glasgow S4, Scotland.

Volcanic dust from Mt. Hekla, Iceland

Hekla or Hecla is an isolated volcano in Iceland about 20 miles north of the southern coast. It is conical in shape, terminating in 3 peaks of which the central one is 5,110 ft. high. Since the 10th century, 43 eruptions are on record. The worst occurred in 1766 with great destruction of life and property.

Sandy Ramsay, 1015 Aikenhead Road, Kings Park, Glasgow S4, Scotland, sent us a sample of volcanic dust from this destructive volcano. It is a medium grained, black sand consisting chiefly of black lava with some magnetite.

"Volcanic dust. From the crater of the 1947 eruption. Mt. Hekla, Iceland."—on label.

Beach sand from Inchon, Korea

Inchon, a city in the western part of Korea, is on the Yellow Sea. From the beach at Inchon we have a sand sample that was collected for us by Mrs. Sylvia Czayo, U.S. Embassy, APO 301, c/o P.M., San Francisco, Calif.

The sample is a fine grained, brown sand. It consists of smoky quartz, black biotite, and flesh colored feldspar with a tiny amount of dull black magnetite.

Quartz sand from El Pueblita, Mexico

El Pueblita is a little village in the state of San Luis Potosi, Mexico. From El Pueblita we have a sand sample that was sent us some months ago by Glen E. Kiser, Douglas, Kans.

The sample is a medium grained, grayish-brown sand consisting of colorless transparent quartz, with a tiny amount of black magnetite and some brownish rock whose identity is difficult to determine.

Beach sand from Inverkip, Scotland

Inverkip (Renfrewshire) is on the Firth of Clyde, in Western Scotland. From the beach at Inverkip we have a sand sample that was sent us by Sandy Ramsay, 1015 Aikenhead Road, Kings Park, Glasgow S4, Scotland. The sam-

ple is a medium grained, pale reddish sand. It consists chiefly of quartz (colorless, smoky) with some black magnetite and red clay (the clay stains most of the quartz). A few sea shells also present.

River sand from Komgha, South Africa

From Komgha, Cape Province, South Africa, we have a sand sample that was sent us by F. C. M. Bawden, P.O. Box 1167, and Mrs. I. Gush, P.O. Box 1128, both of Johannesburg, South Africa.

The sample is a fine grained, brown sand. It consists of quartz (brown, colorless, red chalcedony), also highly lustrous black magnetite. The magnetite is a lustrous that it glistens beautifully. It must be tough on the eyes to walk over this sand on a sunny day.

"River sand, Great Kei River, at

bridge just north of Komgha, Cape Province, South Africa."—on label.

Monazite sand discovered in New Mexico

Raymond Conover, Stone Ridge, N. Y., sent us two clippings relating to the discovery of a huge deposit of monazite sand in San Miguel County, New Mexico (17 miles west of Las Vegas in the Sangre de Christo Mountains). The deposit, estimated to contain 4,000,000 tons of monazite sand, would add substantially to the country's supply of thorium, as monazite sands contain more thorium than any other material. If the size of the deposit is correct, it marks the first time that monazite sand in commercial quantity has been found in New Mexico. The color of the sand should be brown, as monazite is commonly a brown mineral.

VISITING ROCKHOUNDS WELCOME

The following subscribers would be delighted to have rock hounds call on them when passing through their cities. If any one else wants his name added to the list, just let us know.

R. A. Richards, Box 44, Morristown, Ariz.

Mrs. John A. Talbot, 1221 W. 6th Ave., Pine Bluff, Ark.

Leroy H. Grossman, 211 N. Park Ave., Batesville, Ind.

Edward Rushton, 730 Bexley Road, West Lafayette, Ind.

David B. Sleeper, Box 4, Sabuttus, Me.

Leroy Leisure, 500 Townsend Ave., Brooklyn, Baltimore 25, Md.

Carl F. Lemin, 624 E. Division St., Ishpeming, Mich.

Edward T. Barone, 48 Elmwood Rd., Verona, N. J.

Clark P. McLean, Brass Castle Road, RD #1, Belvidere, N. J.

Don Alfredo, 322 Linda Vista, Las Cruces, N. Mex.

Vernon Haskins, East Durham, N. Y.

Peter Krump, Box 164

Salisbury Center, N. Y.

William N. Secrist, 195 Lehigh, Rochester 19, N. Y.

Phone GENESEE 8216M

Donald V. Dalton, Box 68, Chimney Rock, N. C.

James A. Ray, 12 Caledonia Road, Asheville, N. C.

Fred J. Teague, 1612 3rd Ave., S. W., Hickory, N. C.

Albert Laws Kidwell, 1410 Terrace Drive, Tulsa, Okla.

Mrs. Ammon Schwartzbach, 2239 Logan St., Harrisburg, Pa.

Donald H. Leeds, 2025 Westfield Terrace, Bethlehem, Penn.

Adolph. Hillstead, 1309 4th St., Brookings, S. D.

Howard V. Hamilton, 1340 Crandall Ave., Salt Lake City 6, Utah.

G. W. Weber, 1320 Portland Ave., Walla Walla, Wash.



WOMEN'S CORNER OF R&M

Conducted by Winnie Bourne
c/o Rocks and Minerals

Box 29, Peekskill, N. Y.

When we first introduced "Women's Corner" in R & M as of the Jan-Feb issue we had no idea that we would be so instrumental in further opening-up the door into the field of Mineralogy as far as feminine participation is concerned.

It's amazing how the members of the fair sex have jumped, so to speak, at the opportunity at last to let their experiences be known as to collecting mineral specimens, the cutting and polishing of such, and to the many new found friends and associations resulting from their participation in the mineral field in one way or another.

We had our fingers crossed with the introduction of "Women's Corner" in R & M, but now that we are over the first hurdle, it's full steam ahead. Keep the letters pouring in and let us know of your particular interest or experience in any phase of the Mineralogical field. Others are interested in hearing about it and so are we.

The continuance of the Women's Corner will depend largely upon the support given me by readers. Come on girls, don't let me down. Now that the women are being recognized by America's oldest mineral magazine, R & M, we must keep the Women's Corner going.

I would appreciate also, notes, news, comments, suggestions, criticisms, and ideas so that we can make this column of interest and value to all women readers. With your aid it can be a most interesting feature of R & M.

Send all items to me, Winnie Bourne, c/o R & M, Box 29, Peekskill, N. Y.

To A Rockhound's Wife

If your blood is mostly water
And your lungs won't stand fresh air,
If the wind mars your complexion
And the sunlight ruins your hair;
If you worry about your feeble pulse
And your health is under par, - - -
I'll bet you're the type of woman,
Who "just sits in a car."

True, you may not suspect it,
But the facts are plainly seen,
Your husband would not be healthy,
If he followed that same routine.
So put on a pair of denims,
And pull on some boots and socks;
Get out with your hammer and knapsack
And join in the search for rocks.

You'll find that life has a flavor,
You'll soon be filled with a zest,
For finding a beautiful crystal,
That really outshines the rest.
You will learn that your spouse has no
magic,
Your eyes can spot specimens, too,
And, at night, when the rock hunt is
over,
That the choicest were found by you.

You'll forget about reading or knitting,
To while the hours away;
For you will be eager and anxious,
To be first in the rock hunt next day.
You'll be filled with spirit and fervor;
Your eyes will be twinkling like stars;
Your heart will have nothing but pity,
For the "women who sit in cars."

by Fran Schiller
Luke, Md.
Luke, Md.

Letters Received from Readers

"Congratulation! On your new column in R & M. I am just a new subscriber and I'm glad to get in on the first issue with the "Women's Corner."

"I'm just a 'beginner' at collecting too, but enjoy every specimen I have, the only thing wrong I find I live in the wrong state to collect anything very interesting. I'm afraid Indiana doesn't have much to offer.

"I have several beautiful geodes lined with clear quartz crystals that I found in the southern part of the state, but all the rest I have bought at rock shops and sent for. I have a friend that is interested also so we sit in gravel pits for hours looking for something different or a brachiopod.

"I really want to wish you a lot of luck and success in writing."

Mrs. Fern Penner
370 E. Main St.,
Peru, Ind.

"A very young 'woman' rock hound is my daughter Jane, 13. She has collected rocks and fossils since she was able to walk. Her great-grandmother taught her to love this hobby.

"At the annual 4-H achievement day for our county she will show an exhibit of jewelry she has made and at the Michigan Science Fair she will have an extensive exhibit called 'Treasure at Your Feet—Pick it up and Polish it', showing the various minerals that are used for gems that can be found in this country in both the rough and polished forms and a note telling where found etc., with each one as well as some finished bracelets and necklaces and equipment used.

"She also plans to exhibit this again at the Michigan State Fair in Detroit in the fall.

"The Science Fair is held in April at the Hillsdale College. I will try to get a picture if you would be interested. I think more young people could spend their time this way.

"Also at the Science Fair she will show her collection of fossils identified and a short item written about each one."

Mrs. M. S. Booth
703 Parkdale
Rochester, Michigan

"I am delighted with the possibilities of the Women's Corner in R & M. Going back to the beginning of my collecting days I cannot remember when I did not pick up pretty colored pebbles and bits of rock. They were treasured down through the years and I still have most of those picked up in those wee years. Thanks to my mother who was very

tolerant. Color and shape interested me, beyond that I knew nothing for years. In those days trips covering any distance were unknown. In the early twenties my brothers and I ventured to Colorado. Still I knew nothing except color or shape. Among many others one mottled green water-worn stone was picked up from the stream in Thompson Canyon. When we made the rock map of the United States we used this, still unnamed, rock for Colorado. Later a trip to California by rail increased the collection considerably. (Since then many have been identified and found I had some interesting specimens). I cannot remember of ever associating the gems in jewelry with anything in my boxes of treasures, and to this day I do not remember when this knowledge reached me. After I was married there were not many trips and when one was taken it was a rather disheartening affair for my husband who tried to be patient while I gathered rocks. Many were the times I was threatened with having to get a truck to follow. But that proved to be only the beginning.

"We moved to Arkansas and when everything else was loaded, the rocks were put in the back of the truck. Upon arrival in Hot Springs the trucker said he had a good trip but at times it seemed the rear end was heavy. He didn't load the truck and knew nothing of the rocks he hauled.

"At Hot Springs we made the acquaintance of the famous quartz crystals. This proved to be too much and my husband's downfall. One rock led to another and the next thing it was he who was stopping to pick up rocks and tonnage really increased. There was much more need for a truck than at any previous time. If we ever move again I think we shouldn't. We do have a very nice collection for amateurs, have made a lot of lovely new friends, had fun trading and the last months more fun supplying Rockhound car plates to other Rockhounds."

Mrs. Clara Roder
R 7, Hot Springs, Ark.

"May the column for the distaff side have a long and happy life. I am strictly an amateur having first set my eyes and interest in the field of minerals some two years ago when my brother brought home from his trip to Yellowstone a few boxes of minerals with a small booklet explaining very sketchy the formation and chemical content. I then obtained a few primary books and from then on I had myself a very absorbing hobby and one which has brought me a great deal of pleasure and satisfaction. I have now become very interested in geological processes. Because of poor health I cannot do much rock-hunting but have a small but good selection of specimens. I try to purchase as many mineral specimens as I can afford.

(Continued on page 287)

THE GEM COLLECTOR

Conducted by Bill Cole
408 Dickinson, Chillicothe, Mo.

OPAL

Opal is a common mineral, being present in many forms such as the great beds of Diatomaceous Earth deposited by fossil skeletons of ancient marine plants. Or the large deposits of Geyserite in Yellowstone Park that are the result of hot springs and hydrothermal activity deep in the earth. Many other varieties of common opal are also known including the brilliantly fluorescent variety Hyalite, or the opalized wood found on our western deserts. However the gem quality of precious opal is exceedingly rare and few localities produce a good grade.

The physical properties of opal are S.G. 2.10, hardness $5\frac{1}{2}$ to $6\frac{1}{2}$, refractive index 1.454, the color varies from clear water white to black or dark grey, the luster also varies according to the type of stone from glassy to resinous and some even have a chalky appearance. Opal is a hydrous silicon oxide, the water content is quite variable in the different types.

The opal ranked second only to Emerald in Pliny's time, and in His Natural History of the World he relates that a Senator by the name Servilius Nonianus suffered banishment from his country rather than give up an opal he treasured very much to the Emperor Antonius. Pliny also stated that the only way to test a real opal from a false one made of glass, was to view the sun through the stone; the true opal was supposed to show many colors and the imitation one would appear evenly colored. This would hardly be a fair test as any opal will appear to be evenly colored when viewed by transmitted light as the opal depends on reflected light for its color play rather than a pigment in the stone.

Only in recent years has the opal come back into popularity because for many

years the gem was considered unlucky, a belief that arose when a novel by Sir Walter Scott appeared that described a black opal that was cursed and brought ill fortune to its owner. Another story related to the opal's being an ill-fated gem had its beginning back in the time of the black plague in England. For at that time the opal was a very popular stone and worn in many forms of jewelry. Now when a person caught the plague he developed a very high fever just before death, and since the opal is so sensitive to heat a stone the victim might be wearing could change in appearance either flashing unusually bright or become quite lifeless due to the radical change in temperature. Now a not too intelligent person who would observe this might think that the stone was bewitched and the cause of death; for at that time anything that could not be understood was simply the result of a curse or the work of the devil.

The riot of color present in a specimen of opal is produced when the opal or silica gel deposited by a hot spring or other source cools off and loses some of the water present in the mineral; this results in the stone's cracking; later another solution of silica gel containing a different amount of water enters these cracks and also solidifies; this results in areas of different refractive index and so light upon entering the stone is bent or refracted and this gives the color patches throughout the stone.

There are many varieties of opal used as gemstones, among which are Jelly opal, a transparent gem of very slight tint if any, with a great many large patches of color, this is one of the finest types; White opal, that which is of a milky white hue and covered with a play of color; Mexican Fire opal is a red-

orange to yellow transparent variety with a good play of color, although it is sometimes masked out by the overall color of the stone. And finally, the king of all opals, the black variety. No other stone is so enchantingly beautiful and mysterious as black opal with its elusive flashes of color unrivaled in the gem kingdom. Black opal is semi-translucent and of a brownish-black color with every shade of color from the world of gems gleaming from within its depths. Every shade is present in the utmost purity as these colors depend not on the absorption of a part of the spectrum to give it life, but on the refraction of light which yields the purest colors known. Each color seems alive and dancing back and forth in the heart of the stone. Surely the black opal is God's masterpiece of gems for He endowed it with every hue in nature's storehouse of color. To look into a black opal is like watching a flaming red meteor crashing into a sea of green, and bursting forth again as a shower of liquid gold only to be frozen into a mass of blue.

The most important world locality for opal is undoubtedly Australia where the opal diggings have been producing the world's finest gems since 1889, when the fields were discovered accidentally by a sheep herder who chanced to pick up a specimen while out in the bush country. Australia is famous for the beautiful Jelly opal which has become a world favorite.

In the United States, the finest sort of black opal is found in the Virgin Valley of Nevada. Here the opal horizon lies in the upper Eocene or lower Miocene age, and the opal occurs in the form of wood casts which are most likely drift wood laid down by the lake which once filled the valley. It was from this locality that the fabulous Roebbling opal came, a one pound specimen declared to be the finest black opal in the world.

Another well known opal locality is Mexico, near the town of Queretaro,

where the orange-red variety of fire opal is found. Fire opal has been reported in many other localities throughout the world but very few produce good cutting grade.

Many grades of opal can be purchased nowadays for collections and cutting purposes. However, the fine grade is very scarce and will become even scarcer in the future unless new discoveries are made. So write your favorite dealer today and see what he has to offer, for every gem collection should have a good representation of opal.

For Pebble Pups — A collecting Guide for Junior Geologists

Youngsters who aspire someday to be "rockhounds" (amateur rock collectors) will be off to an excellent start toward this fascinating hobby with a book just published by Chicago Natural History Museum: *For Pebble Pups—A Collecting Guide for Junior Geologists*. Accompanying the 95-page book is a set of 18 representative rock and mineral specimens such as quartz, granite, mica and pyrite.

Aimed at the young amateur collector from eight to 12 years of age, the book is written in a lively and informative style and gives numerous facts with which even the average adult is unacquainted. Author is Mrs. Della Cox Weaver, 8241 S. Evans Ave., lecturer for the Raymond Foundation, museum educational division, and a specialist in geology.

With the aid of 27 photographs and the handy reference kit of actual rocks and minerals, Mrs. Weaver introduces her pebble pups to the wondrous world of rock and mineral collecting—she tells of volcanoes, the Carlsbad Caverns of New Mexico, open pit mines, oil traps and the Grand Canyon—identifying and describing the rocks and minerals, their sources and their locations. The author also outlines the simple equipment needed by the young collector and suggests other readings should he want to further pursue this rewarding hobby.

Mrs. Weaver devotes a chapter of her book to fossils to fully prepare the pebble pup should he discover crinoids and trilobites (fossil animals) in the rocks he has collected.

For sale by the Chicago Natural History Museum, Roosevelt Road and Lake Shore Drive, Chicago 5, Ill. Price \$1.25 (book & rock set.)



FOSSIL DEPARTMENT

Conducted by Howard V. Hamilton

1340 Crandall Avenue

Salt Lake City 6, Utah

CRETACEOUS FOSSILS OF ORANGE COUNTY, CALIFORNIA

By David R. Berry,

301 Artesia Lane, Long Beach, California

In the eastern part of Orange County, California, rise the Santa Ana Mountains . . . a great geological museum. A great variety of formations occur here. One of the oldest formations, called the Bedford Canyon, dates from the Triassic period. In the Cleveland National Forest the main Cretaceous deposits are located. Along the flanks of the mountains nearly every Tertiary division is distributed. In some locations the Miocene contains great numbers of shark teeth. As most of the formations containing shark teeth and whale bones are on private land, where no one can get on, we turn our attention to the Cretaceous deposits.

The Cretaceous fossil bearing formations are underlain by a reddish colored, unfossiliferous conglomerate known as the Trabuco. If you have once seen this formation you will know it wherever you see it again. It consists of large cobbles in crumbly shale. Now and then it grades into pebble beds with large areas of cemented yellowish sand. This is the basal Chico conglomerate. Over this the sea, which laid down the Baker Canyon sandstone, Ladd, Pleasants, Holz, Williams and other members of the Chico formation, played host to many clams, snails, ammonites and other marine invertebrates. Their remains are found in the formation just named.

Most of the canyons such as Trabuco, Modjeska and Silverado have deposits of fossil shells. A great deal of this is on private land. For anyone desiring to collect fossils there, I suggest they visit the ranger at the guard station in Silverado Canyon. He knows just about

which areas are open for collecting and which are closed. At one location to which the ranger directed me I have had the pleasure of obtaining a great variety of fossils.

On my first trip to this locality, I collected only large rocks full of marine shells. At home I worked on these pieces and had the good luck to find my first two ammonites, extinct relative of today's Pearly Nautilus. I recently traded one of these, a print of a form known as *Discotropites*. As I am very interested in ammonites, I was back at this location soon. I succeeded in finding several more specimens although they were small and broken.

The collector will find through his own studies that each canyon's fauna is typical to that canyon alone. At this location I noticed that the clam *Trigonia* is associated with the ammonite *Discotropites sandlingensis* (Hauer). Fossil gastropods are common, although they are small. The most common species is *Ampulina packardi* (Popenoe). A type of olive shell, known as *Actaeonella oviformis* (Gabb) is rarely found here but is common at other locations.

In looking for ammonites, I found an outcrop of what I believe to be the Ladd member. In this I found a great number of shells. The most peculiar form is a large *Trigonia ynezana* which is abundant but usually broken. A smaller form, *Trigonia evansana*, occurs abundantly here, but in nearby Silverado Canyon I have noted only one specimen.

One day as I was splitting a shale boulder in this area, I noticed on one large piece the print of an ammonite.

I examined the other piece lying at my feet. I about fell over as I saw an ammonite on that slab which was five inches across. One day as I was demonstrating to a friend how to split the shale to expose the fossils, I was surprised to find two specimens of *Placenticeras californicum* on the shale. These are small ammonites but I have heard of *Pachydiscus*, similar to the giant Mexican ammonite, being rarely formed here.

Turritellas occur not far from this locality, but are not as large as the *Turritella chicoensis* found in Silverado Canyon. A friend of mine discovered three of the largest *Turritellas* I have ever seen from Silverado Canyon in a piece of Chico float!

Perhaps one of the scenes which I will remember longest, was late one afternoon as we were coming down that mountain road loaded with Cretaceous shells. I looked back to where we had been and I saw the mountain completely enshrouded by mist. It seemed as if the old Cretaceous ocean was once more lapping at the already ancient rocks. The sky above was overcast and dark, and it made me think very much of that shadowy era.

Collecting in the Santa Ana Mountains should be done only in the spring when there is no great fire danger. The Forest Service has placed signs along the major routes in this area to stress fire prevention, as a fire in these rugged canyons is a terrible thing. Readers Digest for October 1955 describes a fire near Trabuco Canyon.

Be sure the property is not private land. Many excellent localities which the owners once allowed to be searched are now closed because of vandal collectors. A person should not attempt to do much climbing in these mountains unless he is sure it will have no ill effect on him. A tremendous amount of energy can be burned up in no time climbing over the broken remnants of a Cretaceous ocean.

Collector's Corner

For the special benefit of collectors who may be living in areas far removed from other collectors, we have opened this feature. In this corner, a collector may have his name and address listed for the purpose that other collectors may write him in the hope that through correspondence, exchange of ideas and specimens, new friendships may be formed. Listings are free.

H. J. Kendrick, Ophir, San Miguel Co. Colo.

Jimmy Henderson, (13 yrs.) 1345 W. 10th St., Bogalusa, La.

Joseph Jeski (13 yrs.) 676 Humboldt St., Brooklyn 22, N. Y.

Mrs. Tres. Lawhead, 3rd St., Roulette, Pa.

Walter Scott Gray, Jr. 417 S. Perry Ave., Denison, Texas.

G. W. Weber 1320 Portland Ave. Walla Walla, Wash.

Looking Back — 25 years ago in Rocks and Minerals June 1931 issue

ON COLLECTING SANDS, by Harold Orville Whitnall, pp. 45-51. A collection of sands lures one in a number of directions. They may be studied from their mineral content, their mode of origin, or their usefulness to man.

FAMOUS "ROOLING ROCK" SAVED FROM DESTRUCTION, by James G. Manchester, pp. 52-53. A famous landmark is this 140 ton boulder.

THE MALACHITE OF WHITE PLAINS, N. Y., by Thomas Fluhr, pp. 54-55. Malachite was discovered in a new road cut during the construction of the Central Westchester Parkway.

ARE THE "GOOD OLD DAYS OF MINERAL COLLECTING GONE?", by Morrell G. Biernbaum, pp. 56-58. An interesting discussion on collecting.

Club and Society Notes

Attention Secretaries—Please submit neat copies. Give dates and places of meetings. Check names for correct spelling.

East

Rockland County Mineral and Gem Society Spring Valley, New York

The Rockland County Mineral and Gem Society held its monthly meeting in April with Mr. George Weeks of Airmont, N. Y., as our member-speaker. His subject was "Astronomy" and the part it played and still is playing in mineralogy, as all things begun with the birth of this earth, which, according to the most accepted theory, happened over two billion years ago when a collision took place in the Cosmos between our sun and another large celestial body, with the result of this violent impact, gaseous fragments were torn loose from the sun and spun off into interstellar space with the result that the sun formed her own solar system with the planets circling around the sun in their orbits as we now know them. It has been found through the medium of Spectroscopy that the same minerals exist in the sun in gaseous form as on the Earth as solids.

Then, the Earth, a molten gaseous mass, started to cool down, and in its spinning started to mold; bend and shrink to about 0.5% forming a crust, which is mostly of granite; basalt and trap-rock, hardening to a depth of 50 to 5000 ft., these are called "Igneous", all the common rocks of the earth's crust are siliceous, making up nearly 28%.

Our heavier minerals such as gold, iron, lead, sunk down. Gold solidified fast, acid minerals cooled slowly, iron, for instance, is now supposedly to be still in a molten state, forming the Earth's core. We find plenty of these heavy minerals in our mountains, which did sink but were thrown up by the several gigantic upheavals, explosions that the Earth went through and still is in her cooling-off process.

The oceans came when the steam turned to rain and the water settled down into the low areas. The ocean at this time was not salty, this was brought into the oceans by the run-off of the rivers through the earth, carrying with it many particles of mineral in solution. There are many kinds of salt, and then through the ages, the water evaporated,

leaving the salt beds. Also, through this same erosion, sandstone began to form. The sea-organisms which were the first form of life, such as shell-fish, coral, found in all parts of the earth, decayed, forming limestone. Gases formed through the cooling-off process, then as the lifting of density of the atmosphere occurred, the rays of the sun penetrated and life began, such as the Devonian period—the birth of aquatic life. Reptilian period—that of the giant lizards, crocodiles, amphibian creatures. The Carboniferous period, the age of vegetation, the birth of our present day coal.

Sulfur, one of the first elements which was recognized by man, called "Brimstone" by the Egyptians, was used by them for mythological purposes. This is associated with volcanic rocks, many beds of sulfur are found all over the earth. The animal and vegetable world also helped in forming some of our most valuable minerals which we use today, such as "Chalk", "Coal", and many others.

Since the discovery of the Grand Canyon of the Colorado, much has been learned about geology and mineralogy. It is the living "Book of Sediments" to the scientist, this is his Mecca as it unveils the secrets of the ancient geological past, giving us a perfect graph from the Pre-cambrian age.

Mr. Weeks closed his talk with an apology that he had hardly scratched the surface, but that it was a preliminary of a subject that should be understood by all those who were interested in the hobby of collecting minerals, and that he hoped that others would continue the subject in future discussions.

Following this very serious talk, we were brought back to this modern age by Mr. John Oster who took over with a large collection of baroque tumbled gems of all sizes, shapes and colors. These were all for sale at very low prices. He was certainly stamped by the members who kept him busy making them up into bracelets, necklaces and earrings for the fair sex. Nobody heard the gavel for adjournment.

The next day being Saturday, Mr. John Moyer, our Field Chairman, led the cavalcade into Danbury, Conn. First they visited the Danbury Mineral Club exhibit and then explored the Tilly Foster Mine, coming back to Rockland County with some Connecticut real estate.

Mrs. Marguerite R. Collyer,
West Nyack, N. Y.

Westchester Mineral and Gem Society

The Westchester Mineral and Gem Society held its regular monthly meeting on March 15th at the County Center, White Plains, New York.

Speaker of the evening was Theodore Schoen of Mount Vernon, a member of the club, who gave a very interesting illustrated lecture on "The Minerals of Prospect Park, New Jersey."

At the previous meeting, the speaker was Dr. Frederick Stenbuck of Mont Vernon, who also gave an illustrated lecture, taking as his subject, "The California Gold Trail." Dr. Stenbuck showed slides of historic sites visited on his trip.

The April meeting was held at the County Center, White Plains, on April 19th, and featured an "auction" of better-than-average specimens. We made \$90—about 40 members and friends were present.

All meetings of the club are open to the public, and interested persons are invited to attend.

Kenneth A. Watts,
27 Le Count Place
New Rochelle, N. Y.

Newark Mineralogical Society Newark, N. J.

March 18—Field trip to Mineral Symposium at Doylestown, Pa., by chartered bus—35 members (Snowstorm)—Exciting!

April 18—Regular Meeting, Newark Museum, 3 P.M.—Attendance 65. Speaker, Mr. Edward Bemis, Chatham, N. J. Topic, "Mineral Collecting in England," also showed unusual pictures Mrs. Bemis had taken on their trip abroad last year.

April 15—Field trip—Crystal Hill, Pa.—35 members—Rained. Many beautiful specimens of quartz crystals, singly and in clusters obtained.

April 29th—Field trip—Limecrest, N. J.—Minerals to be found: calcite, pisolitic graphite, fluor. chondrodite and norbergite, quartz crystals, sphene crystals, ruby spinel, actinolite, serpentine, iridescent chalcopyrite, pyrrhotite, brown xls. tourmaline.

May 6th—Regular meeting—Newark Museum—3 P.M. Speaker, Mr. Stewart C. Fulton, Westfield, N. J. Topic, "Mineral Collecting in Utah" (Illustrated).

June 3—Regular meeting—Newark Museum—3 P.M. Speaker, Mr. N. Yedlin. Topic, "Micromounts" (Illustrated).

Summer Field Trips will be announced at the May-June meetings or by contacting our Field Chairman, Mr. M. Kidsus, 23 Ravine Drive, Matawan, N. J. Monthly exhibits of minerals have been shown in the Clifton, Orange and East Orange (N. J.) Libraries. They can now be seen at the Bloomfield Library.

(Mrs.) Sarah H. Sherlock
34 Parkway West
Bloomfield, N. J.

North Jersey Mineralogical Society

Much of the confusion regarding New Jersey as a source of uranium was cleared up by Frank Markewicz, staff member of the New Jersey Department of Conservation and Development, guest speaker at the March meeting of the North Jersey Mineralogical Society in Paterson Museum.

He took for his subject "Radioactive Minerals in New Jersey", a field in which he has been working for some time. Representatives of the Atomic Energy Commission have also been studying these minerals and some fairly definite conclusions have been reached.

Mr. Markewicz said more than forty prospects in the state are known, and at least five of them show sufficient percentages of uranium or thorium and sufficient tonnage to make them of commercial interest.

Among the others, some are so small in extent as to be of only academic interest; some show relatively small percentages of mineral at the surface but drilling might disclose increasing values with depth.

The deposits are chiefly in the ancient gneisses in the northern part of the state and run in general from northeast to southwest, paralleling the direction of the Appalachian Mountains.

He said a complex pattern of the primary radioactive minerals is emerging; that both uranium and thorium are present; and the many secondary minerals found include autunite, gummite, torbernite, uranophane, uranothorite, zircon, possibly euxenite and samarskite.

The gneisses, known geologically as Po-chuck, Byram and Losee, contain these minerals in varying categories. Some radioactive minerals have been found in the sandstones located a little to the south of the gneisses, and most of them occur in small quantities in the pegmatites.

The exploration work to date, he said, has been done in active or abandoned mines and quarries and in open road cuts where the prospecting is relatively easy. He contrasted the heavy top-soil condition throughout all the eastern part of the country with the bare rocks of the western exploration areas where the mineralization can be seen and traced without trouble. He believes much more work should be done to find out what may be under the eastern soil cover.

In fairness to those who are already prospecting, Mr. Markewicz declined to pinpoint the location of most of the specimens of radioactive minerals he displayed to members of the Mineralogical Society, but did suggest that collectors might hunt at a dump in Phillipsburg, at Chester, at Split Rock Pond, at Riverdale and in almost any granite quarry.

Marian Brown Casperson,
Publicity Chairman,
9-11 Hamilton Street
Paterson 1, N. J.

New Jersey Mineralogical Society, Inc.
March and April, 1956 Meetings

At our regular meeting on the first Tuesday of March at the Plainfield Public Library, we enjoyed a talk on the steel industry by Mr. B. R. Anderson, metallurgical representative of the U.S. Steel Corp. Mr. Anderson gave us an interesting resume of the steel industry in general, its problems and its workings and then showed a picture of the development of the "mountain of iron" workings at Cerro-Bolivar in Venezuela. The picture was excellent in its showing of the first geologists that found the deposit, through the importation of all the heavy trucks and machines to clear the land and finishing with the first full trainload of ore that was shipped by boat to the United States. It was a long and very difficult undertaking that is worthwhile only because of the high quality ore that is being mined, and the need in the United States to have and use high grade steel.

A Sight Identification Session was held under the direction of the Field Trip Committee on March 27th at the Library. Carl Bieling spoke on the principles of sight identification and demonstrated his points with mineral specimens from his collection. Joseph Groben explained his specific gravity apparatus and its use. He also offered the plans for the apparatus to any of the members to copy. A portable laboratory for chemical analysis was demonstrated by Walter Boshart. Alex Knoll, who was in charge of the evening, showed his blow pipe equipment and the technique in using it and also spoke on the polarizing microscope. A movie on X-ray diffraction was shown and there was then a period for identification of minerals.

At the April meeting of the N.J.M.S. the members and guests had as their speaker, Mr. John W. Campbell Jr., who spoke on "Limitations". Mr. Campbell is the editor of *Amazing* Fiction Magazine and also an editor for Street and Smith Publications. The talk was on the "Limitations" of our planetary system. Mr. Campbell told of what science believes is to be found on the various planets in the way of minerals and temperatures, and of the odd position of our earth that it goes from glacier age to non-glacier age and the effects that this fact has had on the land itself.

It is impossible to give a complete report on a speaker such as Mr. Campbell. My best thought on the whole matter is that any group that would like an evening of very exciting and thought-stimulating ideas should attempt to have Mr. John W. Campbell, Jr., speak to them.

This meeting marks the end of our formal meeting for the season. On May 8th, the Society has its annual dinner to be held this year at the Dunellen Hotel. The speaker

will be Dr. Sanford S. Cole, a member of the Society, who will present an illustrated talk on a trip through the Black Hills of South Dakota.

During the summer all our thoughts will turn to mineral vacation trips and Field Trips run by our very able committee. Have a fine summer and Happy Rock Hunting!

(Mrs.) Leigh C. Thompson
Publicity

1668 Oliver St.

Rahway, N. J.

Mineralogical Club of Hartford

In spite of the usual winter ailments and uncooperative weather, the Mineralogical Club of Hartford has held each regular monthly meeting (and also each Paleontological Division meeting) with good attendance.

December was the Christmas party with its usual clever games—pointing up our weaknesses and slow wits—a gift for each one, and a bountiful spread of tasty goodies. January 11th Prof. Gilpin of the Trinity College staff, gave a talk with diagrams, showing the inter relationships of chemistry with mineralogy (including a lot of other "ologies": geology, biology, radiology, physics, nuclear, what have you) in "reasonably" primary terms to about thirty of us.

In February Professor Francis, also of Trinity, talked on Tourmaline to about the same number. March 14th, another club member told us of his experience prospecting for uranium, both in the West and in New England, including Connecticut. This program drew a number of visitors, several of whom asked for membership applications. April 11th we again took advantage of the generosity of our Trinity College staff club members when Martin Francis discussed Fluorite with over forty of us. Each of these programs was copiously adorned with choice and representative specimens brought in by members for display.

As soon as field conditions permit (we hope May 13th) we will begin our trips. These are probably going to be the second Sunday in each month. No regular indoor meetings are held in June, July and August but copies of field trip schedules are mailed to members and are available for any interested enough to contact me.

Miss Ruth M. Cowdell
Summit Road, R. R. 1
Waterbury, Connecticut

Connecticut Valley Mineral Club

The Connecticut Valley Mineral Club, with Dr. Warren Johansson of the University of Massachusetts as Program Chairman, is enjoying a most profitable and instructive season.

In January, Dr. B. M. Shaub of Smith

College, and Mr. Charles Hull, charter member of the club, collaborated at our "Trap-rock" meeting. Dr. Shaub described the formation of the local trap ranges, and Mr. Hull showed choice specimens of prehnite, habingtonite, datolite and golden chalcodeite from his priceless collection of associated minerals.

In February, Dr. Gerald P. Brophy of Amherst College, described his experiences prospecting by air in the land of the midnight sun. Gold and uranium are still sought, but columbium, tantalum and selenium are replacing them as objectives. Dr. Brophy presented his theory explaining the concentration of gold in the quartz veins of the greenstone rock.

Dr. George W. Bain, Amherst College, stopped in Australia on his round-the-world tour and brought up-to-date news of the animal, vegetable and mineral life in the land down under, where one freezes in July and finds the white meat on the turkey leg. From the mineral heavy sands along the eastern coast, to the tin and copper mines of Tasmania, and the "Golden Mile" of Kalgoorlie, Dr. Bain found Ahstralia to be a geologist's paradise.

The slate of officers elected for the 1956-57 season is as follows: President, Lawrence W. Schoppee; First Vice-President, Rev. Mr. M. W. Corbett; Second Vice-President and Program Chairman, Dr. Warren Johansson; Secretary, Mrs. L. W. Schoppee; Treasurer, Mr. Raymond Robert; Curator and Librarian, Mr. Leo D. Otis.

Mrs. Lawrence W. Schoppee
Secretary
9 Greenbrier St.
Springfield 8, Mass.

Westminster Mineral Club

Our first annual meeting was held on February 24th at the home of Mr. and Mrs. Toivo Puranen, at which time the following officers were elected for the year: Toivo Puranen, president; Kaino Oinonen, vice-president; Mrs. Burt Cummings, treasurer; Mrs. Frank Rukas, recording secretary; Mrs. Vance Butterfield, corresponding secretary. Field Trip committee, Toivo Puranen, chairman, assisted by Kaino Oinonen and Vance Butterfield. Finance committee, Mrs. Kaino Oinonen, chairman, with all member assisting.

It was voted to hold only one meeting a month on the fourth Thursday at 7:30 P.M. These meetings are at the homes of members rotating in alphabetical order.

After a general discussion of projects for the coming year, our new president demonstrated his recently acquired lapidary outfit. Refreshments were served by the hostess.

At our March meeting, held at the home of Frank Rukas, we re-labelled more specimens from the old collection at our town library, known as the Raymond Collection. When this project is completed, the whole collection will be attractively arranged for the enjoyment of the public. All members were present. Refreshments were served by the hostess.

Doris C. Butterfield,
Cor. Secy.,
Minott Road,
Westminster, Mass.

Pine Tree Gem and Mineral Club

The Pine Tree Gem and Mineral Club was organized March 28th, 1956, at the home of H. Clyde Thomas, Roxbury, Maine. Theodore Davis of the Oxford Gem and Mineral Club was the speaker, and Ted also consented to act as moderator. The group elected Robert Noyes of Byron, Maine, for president; Faye Jamieson of Roxbury, vice-president; Irene Noyes of Byron, secretary, and Freeda Thomas, Roxbury, treasurer.

It was voted to have our regular meetings on the last Monday of every month, and the annual meeting in March. May 1st, 1956, was set as the deadline for accepting charter members, and the age of 9 was decided upon as the minimum age for members. Anyone who is interested in minerals and gems is welcome to attend meetings and visit us.

The two excellent displays of gems, minerals and rock formation set up by Joe White of Byron and Ted Davis made for an enthusiastic and interesting discussion.

Refreshment topped off an enjoyable evening.

Mrs. Irenee Noyes,
Secretary,
Roxbury, Maine

Gem and Mineral Society of the Virginia Peninsula (Hampton, Va.)

On April 10, 1956, the Gem and Mineral Society of the Virginia Peninsula viewed "Modern Gem Cutting," a film distributed by the Linde Air Products Company. This film shows the method used to cut and polish Titania, one of Linde's synthetic gem materials.

On April 15 a field trip to Amelia County was made. Amethyst, green albite, lithium, and smoky quartz crystals with a decided green tinge were collected. The club placed a display in the office of a local insurance firm, consisting of mineral specimens, fossils, cut gem stones, including both cabs and faceted stones, and a collection of carved jade figures.

Mary Ann Kelley
Club Secretary

The Southern Appalachian Mineral Society Asheville, North Carolina

Fred M. Allen, Jr., of Lincolnton, N. C., was elected president of the Southern Appalachian Mineral Society at its annual meeting in Asheville, N. C., March 17. Mr. Allen succeeds Dr. Martin Wadewitz, who has served as interim president since the death of the Society's president. Col. Orville M. Hewitt, last October.

Other officers elected at the meeting held in Dr. Wadewitz's home were Burham S. Colburn, Sr., chairman of the board (permanent); W. M. Graham, vice-president, and Miss Martina Wadewitz, secretary-treasurer, all of Asheville.

Directors, in addition to the officers, elected were Miss Thelma Howell, Highlands, N. C.; Gerald Medd, Arden, N. C., and Mrs. W. D. Phelps, Skyland, N. C.

Otis Lugar, Waynesville, N. C., was appointed chairman of the field trip committee and Robert Campbell, Asheville, was named assistant secretary in charge of public relations. W. M. Graham, Swannanoa, N. C., was named chairman of the Society's lapidary division.

At the invitation of representatives of the Department of the Interior, the Society agreed to aid in revising and adding to exhibits at the North Carolina Mineral Museum, Gillespie Gap, Blue Ridge Parkway, for increased interest to the visiting public, particularly out of the state mineral collectors.

One of the reasons Mr. Campbell was named to the new post of public relations chairman was the decision of the Society to attempt to correct misleading national publicity which has appeared recently. Articles about "\$25,000 rubies," "fantastic emeralds" at the two well-known locations in North Carolina, usually based on rumor or fantasy and appearing in national magazines, have caused disappointment to many out of state collectors. For the benefit of the entire mineral collecting fraternity, it is the desire of the society to correct this practice among unqualified writers.

The annual schedule of field trips was presented, with a trip planned every two weeks throughout the Spring, Summer and Fall months.

The Society was advised by the Department of the Interior that a new study room of minerals in the Parkway Museum would be dedicated to the late Col. Orville M. Hewitt with a bronze memorial to be placed in the museum.

Fred M. Allen, Jr.
Box 501
Lincolnton, N. C.

Mid-West

Hancock Geology Society

We are pleased to announce the formation of a rock and mineral society in our city. Had 25 present at our first meeting—we will meet hereafter on the 2nd and 4th Tuesday of each month. The name of our club is the Hancock Geology Society and until further notice meetings will be held at our residence—3½ miles east of Findlay on State Rt. 12.

Mr. & Mrs. Lloyd Decker
R 2, Findlay, Ohio

Chicago Rocks and Minerals Society

On the night of March 10th, Professor Julian R. Goldsmith, associate professor of Geology and Geo-Chemistry at the University of Chicago, explained the "Role of Temperature in Mineralogy" to the members of the Chicago Rocks and Minerals Society. The club was holding its regular monthly meeting at Greenbriar Park Fieldhouse. Professor Goldsmith received the Mineralogical Award for the year of 1955 and also is co-editor of the Journal of Geology.

An interesting and informative evening was enjoyed by all.

Des Moines Lapidary Society Des Moines, Iowa

The Des Moines Lapidary Club held its social meeting Saturday night, February 18th, at the Des Moines Art Center. Our vice-president, Ray Ruehl, was in charge and presiding officer. Brooches of Montana agate were on display. The contest was not large as many of our members do not have this agate but the workmanship, settings and handsome mountings were beautiful.

One of our members, Dean Vickroy, a jeweler from Montezuma, Iowa, gave a most interesting talk on semi-precious stones.

At our business meeting March 1st, Mr. Gus Brown, past president and organizer, was presented with a plaque with the emblem of the Des Moines Lapidary Society and inscription in gold lettering engraved below, in appreciation of his service.

Considerable discussion took place in regard to the exhibits to be on display at the convention to be held May 2 thru May 20th at the Des Moines Art Center. Many novel ideas will be entertained. We hope for visitors.

At the March meeting of the Des Moines Lapidary Society at the Art Center, men's jewelry in green stone was the featured exhibit. Many beautiful pieces were entered, jade predominating.

The highlight of the meeting was a demonstration of how to build a geode wall plaque, by Gus and Dencie Brown. They brought all the material and made a plaque before our members and guests. Everyone was delighted with it and the completed plaque was given to a new member. Something new for your home exhibit. We watch eagerly for our magazine each month and enjoy the many articles on helpful gem cutting, also we like to hear what our sister clubs are doing.

Signed—Suzy Q.

South West

Mineralogical Society of Arizona

At the March 15, 1956 meeting of the Mineralogical Society of Arizona, Samuel F. Turner gave his second talk on Geology For The Rockhound, describing how to recognize outcroppings of igneous and sedimentary rocks and their mineral and gem stone locations. In the list of Arizona gem stones, he said that a few diamonds have been found in the sands here. He also described curious iron-collecting bacteria that looks somewhat like coral and is found in the swamps of Tenn. In discussing twinned crystals, Turner said that the laws pertaining to twinning present many problems.

Moulton Smith gave a five minute door prize talk on Boulangerite, a lead mineral, but not from Arizona. Among the many uses of lead which he cited, he mentioned the deplorable fact that it is used to make bullets to shoot our fellow creatures with, not meaning human creatures altogether.

Members were saddened by the recent death of Luther Steward, co-founder and first vice president of the MSOA. For many years he was active in the society, and upon his death left his mineral collection to them. He is remembered by many of the younger members, who owe much of their interest in minerals to him.

The March field trip was to the Joshua Forest quartz crystal beds. There were 20 cars and 85 persons. The caravan was guided by Moulton Smith and supervised by Joe Harris.

Ida Smith, Cor. Secy.,
2238 E. McDowell Rd.
Phoenix, Arizona.

Rocky Mountains

Rawlins Rockhounds

Time of meeting, second Tuesday of the month, 7:30 P.M., Community Room, of Court House.

The Rawlins Rockhounds are conducting a series of lapidary classes for new and inexperienced members. All classes have been well attended.

Mrs. Effie Jaramillo,
Corr. Secy.,
308 Jackson St.
Rawlins, Wyo.

California

San Fernando Valley Gem Show

For the first time a Mineral and Gem Show is to be an added feature of the annual San Fernando Valley 51st Agricultural District Fair. This huge event which takes place at the beautiful fair grounds at Devonshire Downs, Northridge Calif., begins Thursday, August 30th, continuing for 5 days from 10 A.M. to 10 P.M. daily, including Labor Day, September 3rd.

This year considerable space is being turned over to the interests and activities of the Rockhound Fraternity. Mineral, Gem & Lapidary Societies of Los Angeles and vicinity are cordially invited to exhibit a locked case to compete for ribbons in various categories. Dealers are invited to apply for booths, approximately 10' x 10' costing \$50.00 inclusive.

Kilian E. Bensusan is Superintendent of Exhibits of the Fair, and will supply additional information to those interested in taking part in this event, attended annually by thousands of people. His address is Bensusan's Brazilian Lapidary, 7320 Sepulveda Blvd., Van Nuys, Calif. Phone St 6-3251. Applications for space should be made at once as they are being filled rapidly.

Korea

American Mineral & Lapidary Society of Seoul, Korea

The first meeting of proposed "American Mineral & Lapidary Club of Seoul, Korea," was held Wednesday, April 4, 1956, in the Seoul Military Post Craft Shop.

Sgt. Antonio opened the meeting at 7:20 welcoming everyone and giving a brief summary as to purpose and aims of proposed club.

Sgt. Antonio informed us that funds for lapidary equipment had been approved. Equipment needed for cutting and polishing stones would probably be available to the club in 2 or 3 months.

A set of by-laws was given out and it was decided to hold off approval and election of officers until the next formal meeting.

The proposal was made and agreed upon to hold one formal meeting on the first Wednesday of each month. Next meeting to be May 2.

A field trip was announced for Sunday, April 8, to the Shieung Copper Mine. The group was to meet at SMP Craft Shop at 10 o'clock A.M. and then proceed to the mine.

The question was raised as to necessary equipment for field trips and Capt. Donald Staver said he would be happy to bring needed equipment back from Japan.

Moving pictures were then shown starting with a news item on Secretary of State Dulles visit followed by "Natural Resources of Nevada" and finally a picture on "Copper and Its Alloys".

The meeting adjourned at 9:45.

There were 15 enthusiastic rock hounds present including: Lt. Col. Holladay, JQ, KMAg (AGSEC- VI 50-449; Capt. J. E. Clark, Jr., VI 50-058; Ruth Bertovich, American Embassy, Agri. Attache's Office; Edward H. S. Min, American Embassy, Economic Office; L. G. Nonini, UNKRA (UNKRA Switch Board #196); R. B. Hall, UNKRA (UNKRA Switch Board #188); Pvt. Ray Worring, Eng. Section VI 50-478; SP/3 Jack Scott, Eng. Section VI 50-478; Pvt. Joel Clinic, S4, Sg, VI 50-131; Capt. Donald F. Staver, Trans. Section 8/A VI 51239; Sgt. Antonio, SMP Craft Shop; Mary Groover, SMP Craft Shop; Mary Minglin, SMP Craft Shop; Mr. and Mrs. Czayo, American Embassy.

Two Giant Dinosaurs On Exhibit In Chicago Museum

The skeletons of *Gorgosaurus* and *Lambeosaurus*, two giant dinosaurs that lived in Canada 75 millions years ago, went on permanent exhibition at Chicago Natural History Museum, Chicago, Ill., Wednesday, March 28, 1956.

Tuesday (March 27) was "Dinosaur Night" at the museum when the great fossils were unveiled at a preview for some 6,000 Chicagoans and suburbanites who support the museum by their memberships, and other invited guests.

The exhibit is now available to the general public daily during regular visiting hours, 9 a.m. to 5 p.m. Admission is free to children every day; free to adults on Thursdays, Saturdays and Sundays.

Gorgosaurus, 26 feet long with his head towering to a height of 15 feet, was king of beasts in his day aeons ago, and a tyrannical monarch. A flesh-eater and a ruthless character, he preyed upon the gentler dinosaurs of vegetarian habits like *Lambeosaurus*, his victim in the museum group.

Gorgosaurus is the most important acquisition the museum has received in recent years, and comes to the museum as a gift from members of the institution's board of trustees who contributed the funds for its purchase. It is an ex-

tremely rare specimen, the skeleton being one of only seven known to remain in existence. Exhibits of this creature may be seen only in museums of Ottawa and Toronto, in Canada, in New York, and now in Chicago. In life the animal is believed to have weighed about three tons. The skull alone is 42 inches long and weighs more than 200 pounds. The skeleton was excavated in Alberta not far from Edmonton, Canada. *Gorgosaurus* was a first cousin to the better-known *Tyrannosaurus*.

Lambeosaurus, the fallen victim in the museum group, was a duck-billed dinosaur. This skeleton was also excavated in Alberta by an expedition sponsored in 1922 by Marshall Field, now first vice president of the museum. Since then it has been awaiting a suitable installation such as has now been made.

The long and intricate task of piecing the skeletons together, which has required 18 months of toil, was performed under the supervision of Dr. Rainer Zangerl, curator of fossil amphibians and reptiles. The technicians engaged in the actual assembling of the huge jigsaw puzzle were Orville L. Gilpin, chief preparator of fossils, Preparators Cameron E. Gifford and Stanley Kuczek, and Assistant Curator William D. Turnbull.

THE AMATEUR LAPIDARY

Conducted by Captain George W. Owens

384th Bombardment Wing, Little Rock Air Force Base, Arkansas

Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all

SELECTING SLABS

Of all the "tasks" least understood by the newer members of the cabochon cutting fraternity is the selection of slabs for both specimen and cabochon purposes. This is evident from the many dozens of both flats and cabs that have been shown as "prize" pieces, but which were of inferior material. Regardless of the knowledge and "know-how" of the cutter, there is but very little that can be accomplished to improve or enhance a piece of poor material.

There are several simple tests that can be applied to "slabs" to determine soundness of the material. One of the most common—and applies to rough found in the field as well as to slabs—is the habit of placing the specimen in question to the mouth and depositing moisture on it—"Licking", if you prefer the term. Anyway, this moisture remains long enough to give indication of any earthy spots and also a fair idea of the appearance of the material when polished. "Earthy" spots are unsound areas, not as solid and compact as the remainder of the specimen. Moisture will readily sink in—usually revealing thousands of tiny holes. This is a sure sign that the area will be difficult to work, may undercut and will not yield that high polish so dear to our hearts, if indeed, it will polish at all! Also, each hole will become loaded with polish compound unless treated in some manner. These earthy areas are common to practically all jasper, most agate, and several other materials such as rhodolite and chrysoprase.

While it is definitely not indicated that dealers operate on the basis of "Let the Buyer Beware", it is up to the individual to determine if the slab will yield sufficient material for his needs.

Considering the present high prices of some types of materials, it behooves us all to give that second look and make sure that the slab will yield the amount we need. An overabundance of earthy spots clearly indicate that the material is inferior and while solid spots are present, usually they will fail to yield the desired gem size or be of poor polish. Nearly all "pom-pom" agate will come under this classification. The very nature of this type material is such that good solid pieces are definitely in the minority. Some slabs with only limited areas of usable material are considered satisfactory because of the nature of the inclusions or the rarity of the type. Some inclusions lend themselves admirably to giving life and color to cabochons. One such material is the Texas plume agate. Often slabs will contain one or two plume areas while others will be almost solid plume. The user should consider which is best for his purpose. Dealers who are kind enough to send "Approval Material", frown on the practice of spot polishing or otherwise damaging their materials. The moisture method is indicated. If you are the dainty type, the use of a few drops of water spread over the specimen will achieve the same results as licking; but as the slab has only a very small capacity for absorption, the use of a copious amount of water is not indicated.

Usually, good slabs will be priced according to size and quality; while run of the mill material will be sold by the square inch, or in lots. However, do not overlook "Lot" sales. Often excellent material is included because of small size or the dealer having an insufficient amount to support an advertisement.

In buying large slabs you should consider the limitations of your equipment. Is the slab too large for you to polish? Will it "fit" with the balance of your collection? Or, if it is to be cut into cabochons, is there so much material that you will become tired of working it and lay it aside? Could you do better by buying several small slabs of different patterns? Such questions are almost without number. The main thing to remember—that once you have obtained the material, good, bad, or indifferent, the results are yours. Choose wisely, do good and careful work and you will be rewarded with superior gems—choose poorly, and all the good and careful work in the world could not make a gem. The old adage "Quantity will never replace quality.", is especially true in our hobby.

In selecting slabs for purely specimen purposes the average collector cutter usually starts out by laying aside some especially interesting slab from his saw—and the first thing you know he has a shoe box full of "special" pieces. These pieces may range all the way from actual museum pieces down to the one slice worth saving from that field trip last May—probably about half of them should be thrown away, but you would never convince him of this fact.

One of the best types of material for specimen purposes is fortification agate. A type that is very beautiful when the bands are highly colored. Practically all mineral books published have at least one plate, often in color, of this type agate.

When in full rounds, not broken, and fracture free, this colorful material is a most welcome addition to any collection. Brazil was once a major source of such agate. Full rounds were highly regarded and consequently brought high prices. Recent finds of high grade, extremely colorful fortification agate in Mexico caused a change in this condition. While the average size of the Mexican material is smaller, the color is far superior. Full rounds of this material are available to the collector at modest prices. One slice in the author's collection has seven vivid colors,

brown to deep pink thru golden yellow to green. A true museum piece!

As a rule, Mexican agate will take an extremely high polish, using ordinary methods. The bandings result in most interesting cabochons in all sizes. The material seems to be slightly softer than the usual run of agate. Obtain several pieces from your dealer and try making "matched" stones, and if you are interested in polish—try faceting a piece of this material. The resultant polish (using cerium oxide on lucite) will astound you. One would not believe that such a high "professional" polish could be achieved.

As a general rule, dealers will do their utmost to satisfy your demands for various types of materials. Beware, however, of the dealer who cuts for the profession and only offers you material which he cannot use in the trade. Fortunately, these firms are few and far between, but they do exist. With the many reputable individuals and firms advertising in **ROCKS AND MINERALS** there should be no problem in obtaining nearly any type of material.

Prices of agate will vary greatly, not only from one section of the country to another, but as to quality and type as well. Mexican agate has been advertised at greatly varying prices. This does not mean that the low priced material is the same as the higher priced. It does indicate that the material has been sorted and graded. The lower priced usually being suitable for those who prefer to tumble, with the better quality and sizes being reserved for cutting.

The wording "Mexican agate" does not connote the material as being from any particular field or place, but rather, that it is of Mexican origin. There are as many varieties and types of agate found there as are found in our western states. Thus, not by any means does the term apply strictly to the fortification type found in Mexico.

Our good friend, and a regular advertiser in these pages, the internationally known gemologist, Colonel E. M. Barron, President of the Southern Gem and Min-

eral Company of 2307 North Mesa, El Paso, Texas has a considerable stock of the fortification type of Mexican agate. His prices are modest and the quality of his material is excellent.

Tigereye is another material that seems to vary a great deal in price. Thickness, color, banding, and compactness of the fibers all play a part in establishing prices of this material—as well as fluctuations of the international rate of exchange. Faceting and cabochon grades of gem varieties of minerals will be priced according to the individual piece, as a rule, and some can amount to a very high investment. Some dealers price cabochon grades by the carat or the ounce, depending on grade classification. A large quantity of junk corundum suitable for the manufacture of sandpaper has been offered for sale in the past and one should be most cautious in buying any of this material unless he is engaged in the sand-

ing paper business. The average dealer expects a fair return on his investment and is entitled to such. He will do all that he can to make a success of your hobby, but you must exercise your own sound judgment in the selection of your materials. If you are in doubt as to the advisability of buying any single piece of rough—talk it over with a friend who knows your equipment and problems; talk about it at one of your club meetings. When you have made your decision—act on it. If you decide to buy, exercise every skill at your command to turn it into as high a quality specimen or cabochon as you possibly can—remember, one excellent specimen or cabochon is easily worth a bushel of inferior ones.

The selection of any material certainly rests with the individual taste of the purchaser. However by closer inspection, before buying, it is certain that we can improve the quality of our stones.

ARIZONA AGATE HUNTING

By R. A. RICHARDS
Box 44, Morristown, Ariz.

Probably the most versatile of gemstones are the Agates . . . in no other gem materials may one find such variety of coloring, figuration, and diversity of location. Of the cryptocrystalline division of quartz, Agate has, as its base, the lowly Chert . . . going from here up thru Flint, Jasper, into True Agate, it may pass on into the hydrous quartz, Opal, Western, and Southwestern sections of the U.S., produce a great abundance of this semi-precious material. Old Mexico, also, should be mentioned. Arizona has a more than fair share of semi-precious gem making materials, particularly in the Agate line. We will note, here, a little item, regarding Agate hunting in Arizona, which is rather peculiar, I believe, to this State.

The best Agate is, more often than not, found on the west (N.W., S.W.,) slopes, when in mountain areas—any 'tongues', running out from main formations, is a good 'bet', also. In the Sheep Mt. Area, a few miles north of

Castle Hot Springs (Resort) central Arizona, an excellent grey 'Fortification' Agate is to be had . . . also good blues, and, occasionally, excellent pinks, or violet. Various colors are, for most part, found in different sections of this area. Thru the southwest part of the State, where the flat, 'plains like' areas are encountered, Agate is found scattered over the surface, in nodular form. From Gila Bend north, in a band several miles wide, good Agate abounds. A very bad feature in Agate hunting thru Arizona, is the rough, sandy terrain . . . and lack of water. Many of the better locations cannot be reached with regular stock cars . . . even with a 4-wheel drive, you must cover several miles afoot, quite often. If this has a rough sound to you, try a trip into old Mexico . . . this is guaranteed to give you proper appreciation for Arizona . . . in one lesson.

One location, which may be entered with regular passenger car, is on the

Agua Frio River, west of New River Station. The writer has brought in excellent black 'Plume' Agate (Pyrolusite 'Plume' in quartz) from this location . . . also, excellent mottled Agate. Here are directions for those who may wish to look in on this location: Leave Hiway 60-70-89 at small town of Peoria, Arizona; crossing Santa Fe Railroad tracks just south of railroad depot (paved road) you travel easterly . . . after some three or four miles, you will come to a Stop Sign . . . turn left, at this point, only far enough to cross the canal . . . turn, immediately, back to your right (paved road) after crossing this canal. Continue on, eastward, to junction with the Black Canyon Road (another Stop Sign) . . . THIS ROAD IS HIWAY 69 . . . and runs north and south, from Phoenix to Prescott. Turn left, at this junction point, onto 69 . . . continue to New River Service Station, some twenty odd miles from junction . . . a good place to gas, and water up. After leaving New River Station, about four miles farther along, on your RIGHT, you will see several U.S. mail boxes, mounted on old pump stands . . . immediately after you pass these mail boxes, a GRAVEL ROAD takes off, to your LEFT. This is where you leave the pavement. Keep to your LEFT, at all branches of the road . . . you stay with the road to Bard B-O Ranch . . . in fact, you pass thru this ranch yard (no gates). Only point, on this road that may be tricky is where you cross Agua Frio River . . . just before reaching the Bard Ranch. You go down a steep grade, to this crossing. I advise a stop, at top of this grade, for a look at said crossing before entering.

Please remember that this is open Range . . . and the cattle have the right of way. Do not molest these cattle, as some are dangerous. Don't get out of your car where these cattle are. Continue on thru ranch yard . . . you pass, shortly, another house, on your right. Some three miles after passing thru here, you will observe, to your right, rather high light colored bluffs, along

the road. At this point you start up a rather steep, winding grade, turning sharply to your RIGHT, as you come out, at top . . . just here you can see a dim, old road taking off to the LEFT. With passenger car, you may take this road with caution, as far as the old abandoned house, but would try to go no farther, except with 4-Wheel drive. It is about a mile from here to the Agates. After leaving this old house, you soon come to a sharp, very rocky pitch . . . you may find Agate anytime after this point . . . but it is better to continue on to where the road is cut in two by flood waters.

All over the low hills on your RIGHT, at this point, you will find Agate. To your left is the Agua Frio River . . . don't bother to cross over, as the other side is not nearly as good as it appears. As you top the grade, instead of taking the old dim road mentioned, you may, if you wish, stay with road you are on for some three miles . . . then walk towards the south (towards the river) and find Agate. For the best, you will have to climb over the first few hills, to the slope next the river.

Writer is at home from November 1st to June 1st, usually . . . any really serious, honest-to-gosh Rock Lovers are, always welcome to call . . . pleased to answer any questions, if stamped envelope is enclosed with letter (this applies only to those I have never contacted before) . . . if I am able to do so.

A great deal has been written and said, regarding proper formation, for certain minerals, etc; this writer has been a mineral Hunter for over thirty years and, while I give all respect due to formation', I would say that it is an error to place undue emphasis on this point . . . in many instances certain minerals have been found where formation' is not, at all, right. It is very difficult to try to lay down any hard and fast rule, as to where to find a certain mineral, generally speaking. As for the Agates in Arizona, about best indication, from a distance, is Light coloring, such as Lime, or Perlite . . . or Bluish Volcanic Ash.

GRAND SALINE SALT MINE

By Mrs. Julian Wetherbee
22 Wheelock Street, Keene, N. H.

Grand Saline, Texas is a small community whose history has been determined by salt. It is 65 miles east of Dallas, on U. S. Route 80. The salt mine is located about 1 mile south from the center of town. Visitors are conducted through the mine twice a day, at 10 o'clock in the morning and at 2 o'clock in the afternoon. This mine is now owned by the Morton Salt Company.

In 1834 the Cherokee Indians acquired the land by treaty and found salt marshes. They evaporated salt from the marshes which cover the center of a vast salt dome.

The land was opened for settlement in 1845 and two men, John Jordan and A. T. McGee, entered into partnership in the making of salt. The town was known as Jordan's Saline until 1872. In 1859 S. Q. Richardson dug shallow wells and installed a pump operated by oxen and a tread-mill. In 1875 the first well was drilled into the salt dome itself. Then in 1891 Major Byron Parsons organized the Lone Star Salt Company and drilled a brine well, installing steam pipe lines into open evaporating pans.

Many salt companies were in operation at the time B. W. Carrington and Company purchased the Lone Star, around 1914, and improved it by installing vacuum pans. This was the method for making table salt.

The Lone Star plant was bought by the Morton Salt Company in 1920. In 1948 the plant burned and was replaced by the modern plant of today.

The mine was started in 1929 and completed two years later. The Morton Company hired a man from France to seal off the water that might seep down into the salt dome. He was familiar with the damp salt mines in Europe and before going down into the mine asked for rubber boots and a slicker. He was told these were not needed as the mine was dry.

This mine is one of several salt domes in Texas, Louisiana and southern Mis-

issippi. They vary in size and purity of the salt.

The depth of the dome at Grand Saline is thought to be about 16,500 feet from top to bottom, and is about one mile in diameter with the top some 230 feet beneath the surface of the ground. It is believed to be in a truncated cone shape. Actual prospective holes drilled have gone to a depth of 900 feet. There is enough salt for unlimited years of operation.

The surface consists of sand, clay and shale for a depth of 190 feet. Below is limestone containing salt water and about 5 feet directly above the salt a layer of anhydrite which is honey-combed with brine filled cavities. This brine on top of the dome is utilized for the evaporating processes.

The salt produced today for table use is made from brine. Wells drilled into the salt deposit put down fresh water and bring up brine. The brine is stored in large tanks where it is treated before going into the vacuum pans to be evaporated and crystallized into perfect cubes of salt (look through a high power glass at grains of salt). The crystals drop to the bottom of the vacuum pans. These pans are three stories high. The crystals are then conveyed through dryers and move on to the automatic can fillers. Still untouched by human hands, the salt is automatically poured into cans and the spouts closed and sealed. Each can is check weighed. Any not up to standard weight are rejected.

In 1929 the Morton Salt Company opened the mine in the salt dome to furnish the various grades of rock salt. After prospecting with diamond drills a shaft was started about $1\frac{1}{4}$ miles south of Grand Saline. It took 16 months to sink the shaft, with the plant completed the mine went into operation in January 1931.

The shaft is about 14 feet in diameter and is cased with concrete. It is in two walled sections for ventilation. Air is

forced down one section and exhausted through the other section. In one section is located a man-life and a skip, both on cables extending into the tippie house, over pulleys and thence to a drum type hoist. They are counter balanced. When the skip brings up salt it is dumped into a large bin in the tippie house. At the bottom of the shaft is a bin to store the salt until brought up by the skip.

Salt mining method is similar to coal or other mining. However the size of the salt deposit at Grand Saline makes it more spacious.

Now let us take the trip down into the mine. First from the office on a short board walk, then over to a part of another building where the man-lift is located that takes you down into the mine 700 feet below.

Your guide will take you through a tunnel to the big rooms or haulage-ways. At the present time they are 20 feet high and 80 feet wide. The rooms inter-connected by cross-cuts which are about 40 feet wide. Where the pillars are left standing they are 80 feet by 100 feet. You are surrounded by salt, you walk on it, the walls and the ceiling are all pure salt and the air is clean, cool and very dry. The mine is well lighted with electric lights.

A few years ago the method of mining was to develop a room 20 feet high under the area to be mined, then the ceiling was drilled and shot down in successive steps to about 60 feet. The loose salt dropped down onto a belt below the original room. When all the loose salt had been removed the floor was mined down to the level of the belt tunnel.

The method now used, a room 20 feet high at the top of the area, then the floor is mined in cuts down to the level of the belt tunnel.

The mine is so large jeeps are used to carry the miners to their working places. Huge burlap curtains, anchored down by a large pipe at the bottom, shut off rooms for controlling circulation of fresh air. Down here in the mine is found a small repair shop. As your guide

takes you from room to room you see the miners doing the different operations.

In preparing a working face for removal of more salt, the face is drilled to a 10 foot depth by 1½ inch drills, by the large mine drilling machine. The holes are drilled on a slight slant downward. The wall from a short distance will look like a tufted quilt (each drill hole like a tuft). The drilling machine can be raised and lowered in order to reach from ceiling to near the floor.

After the driller finishes the wall an undercutter is used. This machine has a cutter bar that look like the cutter bar on a mowing machine. The cutter bar is 10 feet long. This operator cuts the block across the bottom of the face, so it will break out even at the floor level when blasted.

When the drilling and undercutting is finished, blasting powder is tamped into the drilled holes. For this they have a caterpillar tread machine with a loading platform that can be raised or lowered. On this machine the miner stands to fill the drilled holes; 900 to 1,000 tons are blasted at one time.

After the blasting a loading machine, called a Joy loader, moves in, gathers up the salt from the mine floor. It has two wide arms that work in a sweeping motion inward, pushing the salt onto a belt. A Joy shuttle car is placed under the upper end of the belt, thus filling the car with 13 tons of salt in a very few minutes. As one shuttle car is filled another takes its place. There are several of these cars going and coming all the time. They haul the salt to a hopper, with a crusher below the mine floor. The salt is crushed and removed on a conveyor belt. It is then either stored in worked out rooms in the mine or taken to the skip for hoisting to the surface.

Some of the salt is put directly into railroad cars and sold as it comes from the mine to industrial users, while some goes to the processing mill where it is either put in bins or packaged for selling. Some is reground and screened and

(Continued on page 294)

Publications Recently Received

Arizona Publication

PREHISTORIC PEOPLE OF THE NORTHERN SOUTHWEST, by Joe Ben Wheat. This is a 38 page illustrated publication which presents the story of man's rise, his proliferation, and the growth of his various life ways in the Southwest as if it were a settled matter.

Available from Grand Canyon Natural History Asso., Box 219, Grand Canyon, Arizona --price 50c plus 8c postage.

Australian Publication

REPORT OF THE GEOLOGICAL SURVEY FOR THE YEAR 1952. This 54 page publication with many maps (in color) is a recent publication published by the Geological Survey of W. Australia, Perth, Western Australia.

French-African Publications

Rapport Annuel Du Service Geologique, 1954—Annual Report of the Geological Survey for French Camaroons (Africa). A 128-page report with many maps (all in French). Published by the Geological Survey, Yaounde, Cameroon, Africa.

Rapport Annuel Du Service Geologique, 1954—Annual Report of the Bureau of Mines and Geological Survey, French Equatorial Africa, a 128-page report with many maps (all in French). Published by the Bureau of Mines and Geological Survey, Brazzaville, French Equatorial Africa.

Reports on Bedrock Geology of Sunapee

Two new maps and pamphlets on the bedrock geology of New Hampshire have been added to the list of publications of the State Planning and Development Commission, it was announced on Oct. 30, 1953.

"The Geology of the Sunapee Quadrangle" by Prof. Carleton A. Chapman of the University of Illinois is a 32-page pamphlet illustrated with one photograph and six drawings. Of special interest to mineral collectors is a chapter entitled "Rock and Mineral Collecting Localities."

Field work for the Sunapee study was financed largely by generous grants from the Research Board, University of Illinois, and the Shaler Memorial Fund of Harvard University.

"The Geology of the Wolfboro Quadrangle" by Prof. Alonzo Quinn of Brown University, a 24-page pamphlet, is illustrated with one photograph and nine drawings which explain changes in bedrock formation during 330 million years of geologic time.

Field work on the Wolfboro section, done during the summers of 1939 and 1940, was partly financed by a grant from the Bache Fund of the National Academy of Science. Lab work and writing was done at Brown University. Professor Quinn acknowledges that he obtained valuable assistance from Prof. Marland P. Billings of Harvard University and the late Prof. J. W. Goldthwait of Dartmouth College.

Cost of the colored geological maps, which use the U.S. Geological Survey quadrangle maps as a base, was shared by the State Department of Public Works and Highways, the Geological Society of America, and the Commission.

To maintain a fund for printing additional geologic maps and pamphlets the new publications will be sold for one dollar apiece. Maps may be purchased separately for fifty cents. Send orders to State Planning and Development Commission Concord, New Hampshire.

The new publications bring to a total of 19 the number of New Hampshire quadrangles that have been completed, the Commission revealed. Field work on six more quadrangles has been finished, and revenue from the sale of publications now on the shelf will help to meet future printing costs.

With more than half of its bedrock geology mapped, New Hampshire leads the other New England states in this important study of its mineral resources. The work has been accomplished with little expense to the state, thanks to the interest and cooperation of several universities and geological agencies.

RAVINGS ABOUT GOLD IN SWEDEN

By EINAR WHALEN

229 St. Johns Place, Brooklyn 17, N. Y.

Gold is a commodity far from common in the land of the midnight sun, Sweden. It was first discovered, as the story tells, in the weathered copper-plates on some church-steeple. (I do not guarantee this version). The copper came from the Falu copper mine, Falun Dalecarlia, (Dalarna), which started operations in the early 1700. No one knew the ore also contained gold. This gold discovered by chance was extracted as a by-product in the late 1800. Usually only 75-100 kilograms annually. The highest production never passed 450 kilograms. So this mine never qualified as a gold mine. By the way, this mine also was discovered by chance. A farmer had let his goats (all white) out for grassing on a hill. One night one of his goats, besides the well-known odour, also had acquired a red coat. Subsequently he investigated the hill and found the copper—out cropping, which later on became the famous Falu mine. Finally the copper petered out. After the first World War Sweden weathered a depression and the future mining engineers, geologists, and mineralogists just graduated, had trouble to find positions. So the Swedish government sent them to the northern part of Sweden to make a geological and mineralogical survey. Gold was discovered and the country had its first gold mine, the Boliden Mine. The yearly production since the 1930's up to now has ranged between $4\frac{1}{2}$ to $7\frac{1}{2}$ tons of refined gold annually. Also a very large quantity of copper. Enough arsenic is mined in a year to fill the need of the whole world for 8 years. The main minerals are arseno-iron and chalcopyrite. There also exists another gold mine in the south, Adelfors, but as far as I know, no gold has ever been recovered there. With this introduction I come to the point, namely, a new location. Sweden has about the best granite found anywhere. It is fine

grained, has a variety of colors and is very suitable for ornamental work, which is practically the only use for it today. Before it was used as building stone and also cobble stones, curb stones, etc., so as a result today all stone-cutting is ruined. It is only an occasional job. According to "Nordstjernan," the Swedish weekly paper in New York City, two brothers, Frans and Albert Johanson, were cutting stones in a granite-quarry situated in Stammeberget, Tossene, the province of Bohuslan, about a year ago. They discovered a vein in the granite that apparently looked like some micaceous stuff to them. It certainly did not look like good granite so they ignored it completely.

Sometime ago the wife of one of the brothers sent a piece of this vein material in to be analyzed and "lo and behold," it was gold with some silver. The outcrop has been found on the side of the ridge which is approximately 1000 feet long. The whole ridge is claimed and the brothers are now waiting for Boliden experts to investigate.

Old prospectors claim that granite is barren of gold. But do not believe them. I have found gold many a time in granite during my prospecting trips.

Silver Anniversary as a subscriber!

Editor R & M:

Enclosed please find three dollars for which you will keep R & M coming for another year. Incidentally you might say that this is my silver anniversary as a subscriber of R & M. I have been receiving it for twenty-five years. Received first copy in June 1931. That will give you an idea of what I think of it. Do hope I can take it for a long time to come.

Vincent Giordano
29 Cross St.
W. Orange, N. J.

May 3, 1956

NOVICE COLUMN

In the Sept.-Oct. 1953 R & M, Gordon S. ViGario, 2231 Pine St., Bakersfield, Calif., suggested that a Novice Column be opened for rank beginners in mineral collecting. These amateurs, who do not know one mineral from another, may submit their names to the Novice Column.

It is our hope that collectors having duplicates may donate a few specimens to one or more novices who are expected to acknowledge receipt of specimens received and to reimburse each sender for postage paid on the packages. Please print or write plainly the names and localities of all specimens sent novices, and if 2 or more minerals appear on the same specimen, identify each. Remember, the novices do not know one mineral from another, so please be as helpful as you can.

The following is the 16th list of novice collectors:

Jack Nieburger, 3420 W. 55th Ave.,
Denver 11, Colo.

Mrs. Emma Chandler, 904 West Oak St.,
Fort Collins, Colo.

Claude Valentine, R.D. 1, Box 87,
Aurora, Ill.

Michael Fryer, 16 Russell St.
W. Lafayette, Ind.

Mr. & Mrs. Leo W. Yanasak, 3421 S.W.
14th St., Des Moines 15, Iowa.

Mr. & Mrs. Homer H. Horn, P.O.
Box 316, Hiawatha, Kansas

Jesse Bailey, No. Whitefield, Maine

N. A. Farrow, South Sudbury, Mass.

Jack McCarron, (13 yrs.), Highland Rd.,
Merrimac, Mass.

Peter Olson, (14 yrs.), 2312 Ludington
St., Escanaba, Mich.

Mae Benson, R.R. 1, Box 92,
Champion, Mich.

Robert L. Noel, 410 Grove Ave.,
Berrien Springs, Mich.

F. G. Brabon, 771-N. Mill,
Plymouth, Mich.

Miss Helen M. Schlick, Box 218,
Stevensville, Mich.

Douglas Burgess, (11 yrs.), 132 N.
Blair Ave., Royal Oak, Mich.

Bernard E. Dooley, 218 Adams St.,
Iron River, Mich.

John Hanson, (12 yrs.), 3624 Stevens
Ave. S., Minneapolis 9, Minn.

Bess Reed, Box 734, Whitefish,
Montana

Frank Charvat, 5428 So. 15th St.,
Omaha 7, Nebr.

Mrs. Toni Galgano, 92 Lynwood Road,
Verona, N. J.

Harry MacWilliams, (9 yrs.), 213
Kent Pl. Blvd., Summit, N. J.

Nancy Simmons, (13 yrs.), Box 167,
Amenia, N. Y.

Mrs. Flo Clough, 2918 Maplecrest Ave.,
Parma 29, Ohio.

Peter Queden, 1413 East Ave.,
Akron 7, Ohio

Mr. & Mrs. LaRue W. Piercy,
R.D. #1, Wadsworth, Ohio.

Mary Jo Mosier, 6 yrs.), R.D. #2,
Cambridge Springs, Penna.

James H. Schortz, R.D. #1,
Bethlehem, Pa.

Richard Haefner, (13 yrs.), 217 Nevis
St., Lancaster, Pa.

James Schermerhorn, (12 yrs.), Tyburn
Rd., Morrisville, Pa.

Ralph S. Thompson, 2017 Polk Ave.,
Odgen, Utah.

WITH OUR ADVERTISERS

Conducted by James N. Bourne
% Rocks and Minerals, Box 29
Peekskill, N. Y.

Advertisers are cordially invited to submit News Items to this Department.

Reo N. Pickens, Jr., a Photographer of 610 N. Martin, Waukegan, Illinois, has this to say in his letter to us as of the 16th of March re: to his picture slides of mineral specimens:

"I believe my pictures will be a great help in visual education and understanding of minerals and crystals; more so than a two dimensional color slide would be. It is the next thing to actually having the specimen in your hand and looking at it with a powerful magnifier."—Note: Mr. Pickens is a new advertiser in our classified section of R & M.

Here's a letter from Joseph P. Stachura, 8 Upton St., Millbury, Mass., received as of March 16th of this year:

"We went into the mineral-gem-jewelry business eight months ago, and I believe that we will be ready to advertise for mail-order business in R & M in two or three months from now. Have had some difficulty getting the supplies for the type of material we want, but that's about ironed out now, thank goodness.

"Have also secured the dealership for Highland Park Lapidary Equip. Still have to work on the side at present, but my heart is in the mineral and jewelry business either way."

From John and Clara Roder, R 7, Hot Springs, Ark., we received the following letter as of Jan. 11, 1956:

"We haven't any special news except that on our recent trip to Florida, agatized coral hunting has been good. We still have a few Rockhound car plates left. How long the plates will last depends on the number and size of orders. We do not plan to stock more when these are gone. They proved to be a lot of fun, beside some most profitable experiences and we aren't thru yet. Those who want theirs, better not delay too long."

Lapidabrade, Inc., Red Hill, Penn., distributors of lapidary equipment and supplies, has forwarded to us their latest price list effective March 1, 1956. Further correspondence reads:

"You will find that products distributed by Lapidabrade, Inc., are unconditionally guaranteed as to workmanship and quality and that you can purchase with confidence any product endorsed by us.

We pledge ourselves to you, our customers, that we will never compromise our integrity." Price list will be forwarded to you upon request."

Allen's Minerals, 322 W. 23rd St., So. Sioux City, Nebr., is about ready to release their 4 pp. 1956-57 price list featuring mineral specimens from the Black Hills, Arizona, Mexico and California. A portion of Mr. Allen's letter of April 6th reads:

"We have a large selection of fine Black Hills material including rose quartz, cave calcite xls, joyceite, loellingite, and many others. We also have many beautiful specimens from the copper mines of Arizona.

"This list is free and when writing for it, ask for free field trip information on the Black Hills. Just mention the parts you are going to visit."—Note: This is a very cooperative gesture on behalf of Mr. Allen.

N. E. Carter, Elkhorn, Wis., sends to us his latest price list No. 285 itemizing Prehistoric Stone Relics which he has for sale. An item in regards to the price list reads:

"During the past thirty years, we have built up the finest stock of American Stone Age Relics in this country. We offer a selection from more than 25,000 specimens. Every piece is guaranteed genuine. We are glad to send specimens on approval to responsible parties.

"We are breaking up a collection of rare and beautiful Gem Points from Oregon and Washington. All are showy and bold. We can supply points in nearly all colors and materials ever found. Prices range from 50c to \$3 each. We are glad to send selections on approval. Just state the price range that interests you. Write today before this assortment is picked over."

NOTE TO ADVERTISERS

Please comply with our request that we receive your copy on or before deadline date of the first day of the odd months year around and also that copy forwarded to us meet with requirements of desired space. Your cooperation is necessary in our desire to give you better service which in turn will benefit you.

Gilbert W. Withers, 1405 West Paces Ferry Road, Atlanta 5, Ga., distributor for chatham emeralds, forwards us his latest wholesale price list as of April 1956 along with the following item:

"Only four short months have elapsed since we published our first wholesale price list, but in that short time we believe you have established some sort of record for the number of orders and repeat orders you have sent us. We have always felt that a strictly wholesale gem and mineral supply house was badly needed and would be successful. Your instant and enthusiastic patronage has proved the point. Thanks a million!"

We are pleased to announce a new advertiser joining R & M with this issue. He is Ernest William Baikie Miller, P.O. Box 397, Windhoek, S.W. Africa. A note from Mr. Miller reads as follows:

"I have at least 250 specimens of Arandsite and 300 Lithium specimens in my possession as described in my advertisement to R & M. The only Arandsite from the Namib Desert (see August 1955 R & M) which can be obtained today is the weathered product from the outer metasomatic zone.

"We offer specimens roughly 2" x 2" x 1" of this specimen; yellow-green in colour, it also contains cassiterite and mica inclusions.

"A limited supply of this rare basic tin silicate sells at \$3.50 per specimen. This includes postage and no C.O.D."

Scott J. Williams, 2346 S. Scottsdale Road, Scottsdale, Arizona, has just released his latest price list as of May 1956 featuring Native Gold from Red Ledge Mine, Washington, Nevada Co., California. He has this to say relative to above:

"I am pleased to offer a fine selection of crystallized gold from the famed Mother Lode district of California. These specimens are all of brilliant gold color and many of them display sharp crystals.

"Also have autunite from Daybreak Mine, Mt. Spokane, Spokane Co., Washington; azurite from Apex Mine, St. George, Washington Co., Utah; caracolite, gratonite, hutchinsonite, jordanite, roscikyite, from Germany, and many others too numerous to mention."

Have him place your name on his mailing list so you can receive this fine mineral list.

A note from one of our classified advertisers, Harvey R. Shull, 1516 South Market, Highway 137, Oskaloosa, Iowa reads: "Rock-hounds' here is your paradise, cutting material, crystals, fluorescent, thousands of speci-

mens of the earth's rare beauties to view and select from. Come have a look and enjoy a pleasant chat. Choice cutting material, turritella, algae, New Mexico, Old Mexico, Montana, many others."

Bouton's Lapidary, So. Hi-Way, Atascadero, Calif., joins the ranks of R & M advertisers with this issue. He has a "Little Gem Tumbler" for sale at \$39.95, price includes motor, cord, switch and 3 one quart cans. F.O.B. Atascadero, Calif. Sh. Wt. 25 lbs. Mr. Bouton has this to say relative to the above tumbler:

"We offer you full instructions to build and operate the tumbler, with all dimensions, what and where to buy all parts, and what to use to get best results. All this for only \$1.00—write for details."

ATTENTION READERS

Walker's Minerals is pleased to announce the opening of new and larger quarters at 799 Lexington Avenue, New York 21, N. Y. (between 61st and 62nd St.) They were formerly at 1040 Avenue of Americas, corner of 39th St., New York City. We wish them well at their new address and they will be pleased to have you drop in and see them. They carry Geiger Counters, Mineralights, and Lapidary equipment. This month's Opening Special is rough citrine for cutting, good color, 20c per gram. Minimum order 10 grams.

Women's Corner

(Continued from page 265)

"While the hobby and study of minerals is one that requires much study and concentration it is very rewarding in knowledge and for those lone folks who need something more than television and social activity to give a fuller life, I can recommend the study of collecting and identifying minerals.

"It has done a great deal for me and opened up an entirely new world unknown to me before or at least unaware of.

"I think perhaps it might not be a bad idea to really find out through our 'little page' what minerals have accomplished in the way of doing something for us. I know I would like to know of others who have found friendships of great endurance and self satisfaction through the hobby of 'Minerals.'

"I look forward to reading 'Our Column' every month and wish you the best of luck."

Mrs. Maxine Adler
2458 Callow Ave.
Baltimore 17, Md.



It's a wise bird that stops here for Montana Minerals, Fluorescents and rare Crystals from the Butte Mines.

"We ship Montana Agate and guarantee pattern in every stone."

\$2.00 per pound, F. O. B. Livingston, Mont. We sell covering equipment.

YELLOWSTONE AGATE SHOP

P. O. BOX 4 Livingston, Montana

Charles & Connie Miller

Brazilian Stones

ON THE SHORTEST ROUTE
FROM THE MINE TO YOU

ROUGH—for tumbling - cabbing - faceting.

CUT—all sizes and shapes, faceted and cabochons.

SPECIMENS— for collecting and display.

Aquamarines

Green Beryls

Tourmalines

Rutilated Quartz

Amethysts

Citrines

Garnets

Chrysoberyls

Morganites

Rose Quartz

Topaz

Smoky Quartz

Our gem and tumbling rough is obtained, partly from our own mines, by members of our staff who cover remote areas in the interior of Brazil and ship directly from our office in Rio De Janeiro. This setup enables us to offer you the best in value and volume.

Inter-Ocean Trade Company

Leading Producers and Importers

48 West 48th St. New York 36, N. Y.

Circle 6-9431

Tumble Polished Gems From the world over

We have in stock, tons of beautiful Baroque stones of more than thirty varieties, in sizes from 1/4" to 1 1/2" with quality and finish equal to any on the market.

Sold under a "satisfaction or money back guarantee."

PREFORMS—We are now cutting thousands of Cuff-Link Preforms from many kinds of nice materials.

DEALERS, write for wholesale prices.

When in Southern Calif. visit our retail store and largest Gem-Stone rock yard in the west (No retail orders by mail please).

We do custom sawing and tumbling, write for particulars first.

San Fernando Valley Gem Co.

5905 Kester Avenue



Van Nuys, California

WHERE TO GET IT?

WANTED TO BUY

MINERALS UNLIMITED, 1722-24-28 University Avenue, Berkeley 3, California. Particularly interested in collections. We also purchase poundage for identification courses. What have you?

WANTED TO BUY

Choice crystallized mineral specimens, rare minerals, and mineral collections. **SCOTT J. WILLIAMS, 2346 S. Scottsdale Road, Scottsdale, Arizona.** Whitney 5-0803

TOO LATE TO CLASSIFY

A Listing (4 lines) on this page costs only \$18.00 a year - .6 insertions)

How to Collect Minerals, by Peter Zodac. A complete guide book for the mineral collector, 80 pp., 15 illus. price \$1.00. **ROCKS AND MINERALS, Peekskill, N. Y.**

Mountings-Castings-Gem Materials
ROGMOR Lapidary Supplies

Morilla Wilson
106-4th St., Wilmette, Ill. (Phone 1912)

The Renfro's, 2901 Bomar Avenue Fort Worth 3, Texas. Minerals, Gem material, fossils and Handwrought Jewelry.

Tumbled Polished Fluorescent Agate Baroques. \$1.00 Each 3 Different \$2.00 Post Paid. **CAVE CREEK AGATE MINES P.O. Box 97, Cavecreek Ariz.**

Western agate & Wood. Saws to handle above \$75.00 and up, 25c sample of pre-historic dung (coprolite).

ROCKY JOE'S, MORTON, WASH.

HATFIELD GOUDEY, Gabbs, Nevada. Top quality specimens and supplies. Largest stock of carefully selected micromount specimens. Price list on request.

NEVADA FIRE OPAL SPECIMENS

SPECIMENS \$5 and up. Small Chips — \$6 Vial

Larger Pieces, mixed types — \$10. (about 2 oz.)

(A Real Bargain)

TURQUOISE — \$5, \$10, \$15, \$20 and \$25 per Lb.

HOWARDITE (the plaided agate) — Variscite

Wood — Jewelry

Send Stamp for Price List

Rainbow Rock Shop

301 BAUD STREET

WINNEMUCCA, NEVADA

Owners of Rainbow Ridge Mine

COMING EVENTS

July 12, 13, 14, 15, 1956—Midwest Federation Convention Home Activities Bldg., State Fair Grounds, St. Paul, Minn. LeRoy Peterson, Program Chairman, 2626 Riverside Ave., S., Minneapolis 6, Minn.

July 29, 30, 1956—North Lincoln Lapidary Society will hold its 14th Annual Agate Show in the Delake grade school on Hiway 101, Delake, Oregon.

Aug. 30, 31, Sept. 1, 2, 3 (Labor Day), 1956—San Fernando Valley Agricultural Fair Mineral & Gem Show, Devonshire Downs Fair Ground, 18,000 Devonshire St., Northridge, Calif.

Sept. 2, 1956—Gem Village Rendezvous, 12th Annual Rock Show, Buy, Trade, or Sell. Admission and table space free. Mrs. Frances George, Secretary, Gem Village, Bayfield, Colo.

Sept. 28, 29, 30, 1956—Eastern Federation Convention. Host—Gem Cutters Guild of Baltimore. Mrs. Elsie Kane White, Gen. Chairman, 3418 Flannery Lane, Baltimore 7, Md.

Oct. 6, 7, 1956—Humboldt Gem & Mineral Society will hold their 3rd Annual Gem and Mineral Show at the Carson Memorial Building in Eureka, Calif.

Grand Saline Salt Mine (Continued from page 282)

also passed through roller mills. The coarse grades of rock salt is shipped in bulk or paper or cotton bags of different sizes.

The guide took us to one section of the mine where the wall was all crystallized transparent salt. We were allowed to take specimens.

When we returned to the office a lithographed certificate for Morton Salt Mine, Junior Mining Degree, was presented to us with our names and date of our visit. Also a 14 page book describing the mine with pictures of some of the operations.

This Morton Salt Company Mine trip was a wonderful experience. Seeing the mine was well worth while and will long be remembered. The officials were very courteous and pleasant with true Texan hospitality.

Parts of this information was taken from the Morton booklet that was presented to us.

FACETED RUSSIAN EMERALDS

Genuine Faceted Round Brilliant gems. Averaged 40 points each. Good color. Special Price \$5.00 ea. Limited Quantity.

You are invited to ask for my approval selections of rare cut stones such as, Fluorite, Pollucite, Orthoclase, etc. Also Garnets, Amethyst, Ruby, Sapphire, Tourmalines (all colors) etc. and fine Gemmy crystal specimens and gem rough (Faceting quality only). No Agates or Synthetic Stones

R. C. ROMANELLA

22 West 48th Street

New York 36, N.Y.

STOP and VISIT

The most completely stocked mineral sales room on your trip. We feature extra fine CUTTING MATERIALS, MINERALS and crystals for the advanced collectors and the beginner. Also a distinctive selection of gifts and curios. Open every day, except Thursday. 'No Lists Please'

HURLBUT'S AGATE SHOP

R.R. #6

MUSCATINE, IOWA

(On highways 61 and 92, 4 miles south of Muscatine).

Leading American importers of fine foreign gem materials and mineral specimens.

The most comprehensive wholesale price list ever issued is now available to bona fide dealers. Please write for your copy if you have not already received list #11.

Office hours 10 to 5. Closed Sundays and Mondays.

Southern Gem & Mineral Co.

2307 North Mesa

El Paso, Texas

(Highways 80 & 85)

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